Montana Outdoors

Nov./Dec. 1978
One Dollar

Montana Outdoors Nov./Dec. 1978, Vol. 9, No. 6

2 **Wild Horse Island: Jewel of the Flathead**
The state's newest park—an island in northwestern Montana

7 **Contributors**

8 **Diary of a Christmas Hat**
The unraveling of a warm-hearted holiday tale. by Ken Walcheck

11 **The Catchall**
"Increase in Fishing License Dollars Needed," "Tribute to Wynn Freeman," "Moose or Elk—Know the Difference," plus other articles

15 **Montana Montage**
Photographs of some of Montana's wildlife species by a Montana wildlife photographer, Jerry Manley

20 **Aristocrat of the Squirrel Family**
The flying squirrel—the "furry kite" of the squirrel family—can provide impressive aerial acrobatics. by Ken Walcheck

23 **Dear F&G**
"Greyhounds Protect Haystacks," plus other letters

24 **Cutting Your Own Yule Tree**
By observing some simple guidelines, you can cut a Christmas tree without damaging the environment. by Phil Schlamp

26 ***Montana Outdoors* Index**
A list of the major items published in 1978

27 **Rural Subdivisions and Wildlife Don't Mix** Why we need to patch up subdivision laws. by Bob Kiesling and Bill Schneider

33 **Harvest Surveys: How You Can Help**
Accurate information is a "must" in order to properly manage wildlife species. by John P. Weigand

THE COVER: This majestic bighorn ram is part of a herd inhabiting "Wild Horse Island: Jewel of the Flathead." For a look at the island's history, problems and a discussion of management options, turn to the article on page 2 (front cover photo: Harry Engels). *Montana Outdoors* makes a "dog-gone" good Christmas present, as the back cover aptly suggests (F&G photo: Paul Bushaw). It's a gift that does indeed prove that Christmas *can* come more than once a year.

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Montana Outdoors, the official publication of the Montana Dept. of Fish and Game, is published six times each year (January, March, May, July, September and November). Contributions (manuscripts or illustrations) are welcome with the understanding that the department or the editor cannot be responsible for loss or damage. All contributions will be published at the discretion of the editor. Subscription rates are $5 for one year, $9.50 for two years, $13 for three years. (Please add $2 per year for foreign subscriptions, excluding Canada.) Individual copies are available at newsstands and regional department offices. Price per copy is $1. Although *Montana Outdoors* is copyrighted, permission to reprint articles is available by writing our office or phoning us at 406/449-2474. All correspondence should be addressed: *Montana Outdoors*, Dept. of Fish and Game, 1420 E. Sixth, Helena, MT 59601. © Montana Dept. of Fish and Game. All rights reserved

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The Director's Column

Where wildlife is concerned, Montana is doubly blessed; it has a rich variety of species supported by abundant habitat and a citizenry dedicated to conservation of the wildlife resource. A prime example of the latter can be seen in the accomplishments of two recently appointed advisory councils: the Landowner Relations/ Sportsmen Access Advisory Council and the Montana Citizens Nongame Advisory Council.

The 13-member Landowner Relations/ Sportsmen Access Advisory Council, appointed by Gov. Thomas L. Judge in December 1977, has suggested several programs now being implemented or explored by the Dept. of Fish and Game. Its recommendation that biologists and other appropriate department personnel be given ex-officio warden status was unanimously approved by the Fish and Game Commission on July 10, 1978. As a result, 98 department employees have received training and now are qualified to assist with the law enforcement effort.

A second council proposal aimed at solving some of the problems between landowners and recreationists has resulted in establishment of a toll-free telephone number for reporting violations of fish and game laws and laws protecting private property. Success of this program depends entirely on citizen involvement, so please use the special REPORT LINE (1-800-332-6117) whenever you observe a violation.

The Montana Citizens Nongame Advisory Council was appointed by Gov. Judge in March of this year. Composed of nine members, the council was charged with assembling a pool of expertise on all nongame species defined by law, becoming familiar with ongoing department programs and objectives dealing with nongame wildlife, recommending changes in existing nongame wildlife programs, recommending additional nongame wildlife program objectives where needed or desirable and recommending a financial base for expanding the department's nongame wildlife program.

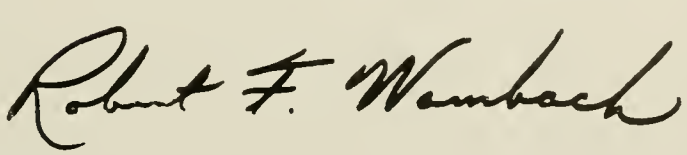
In the short time the council has been active, it has developed three promising proposals for nongame program fund raising: The first calls for revising the current nongame certificate to make it more readily available and more valuable as a collector's item. The second involves establishing a "check-off" box on state income tax forms to provide people with the option of designating a portion of their tax *refund* for support of nongame wildlife. The third would earmark a portion of the money obtained from sale of "vanity" or personalized license plates for support of the nongame program.

The Dept. of Fish and Game has been responsible for administering the nongame wildlife program since 1973, when the Montana Legislature established the program. But neither the 1973 legislature nor succeeding legislatures appropriated the funding necessary for its support. The 1975 legislature established a $5 nongame certificate, but money derived from sale of these certificates has been inadequate to fund the program.

The limited amount of work that has been done on nongame species since 1974 has been funded by money derived from the sale of hunting and fishing licenses. While this demonstrates the willingness of Montana's hunters and fishermen to support conservation of *all* wildlife, it would be unfair to ask them to provide almost total support of the nongame program at the level of expansion necessary for sound management.

Adding to the urgency of the problem is the strong possibility that federal matching money will soon be available to help fund state nongame programs. For these reasons, we are asking the 1979 legislature to adopt the income tax refund "check-off" proposal of the nongame council. Similar programs have been extremely successful in helping fund nongame programs in other states, and we hope this will be the case in Montana.

As director of the Dept. of Fish and Game, I would like to extend my sincere thanks to the 13 members of the Landowner Relations/Sportsmen Access Advisory Council and the nine members of the Montana Citizens Nongame Advisory Council. These individuals have volunteered a great deal of time and effort on behalf of wildlife conservation, and deserve the support and appreciation of all Montanans.



WILD HORSE ISLAND: Jewel of the Flathead

FOR CENTURIES, islands have nurtured the imaginations of countless adventurers. Islands offer escape, hidden places and the built-in attraction of isolation. Montana's newest state park, Wild Horse Island, a 2, 156-acre jewel in northwestern Montana's Flathead Lake, is no exception.

As the eagle flies, Wild Horse Island is approximately 20 miles south of Kalispell and about 10 miles north of Polson. Surrounding the island is the largest body of fresh water in the West. The bed of Flathead Lake was scooped out by the Flathead Glacier during the Wisconsin Period of glaciation. Approximately one-half mile from the west shore of the lake, the island offers an unparalleled vista of the Swan Range to the northeast and the majestic Mission Range to the east, where peaks are often lost in the clouds. The island lies within easy reach of recreationists who might want to explore the Bob Marshall and Mission Mountains wildernesses, Flathead National Forest, Hungry Horse Reservoir or Jewel Basin.

Distinctive grey-blue glacial waters surround Wild Horse Island and provide habitat for native Dolly Varden, cutthroat trout and mountain and pygmy whitefish. In addition, various introduced species of fishes, including the kokanee salmon, largemouth bass and rainbow, brook and lake trout, can be found.

How did the Dept. of Fish and Game become involved with this fascinating piece of land? Following the death in 1973 of Bourke MacDonald, then owner of the island, his heirs sought methods

to preserve the island. The Nature Conservancy, a nonprofit conservation group based in Washington, D.C., became interested and, in conjunction with the MacDonald family, made a proposal to the state of Montana.

Basically, the MacDonald family agreed to donate one-half the island's 1977 fair market value of $3.5 million to the state. Under certain circumstances, the Dept. of Fish and Game can match donated land value dollar for dollar with the federal Land and Water Conservation Fund (LWCF), the proposed source of funding for purchase of Wild Horse Island.

This proposal was presented to Gov. Thomas L. Judge and the 1977 Montana Legislature. The legislature responded by passing H.B. 836, mandating the island's purchase as a state park, if necessary federal or private funds could be secured, but contained authority to spend up to $2 million in federal or private revenue for the purchase. Gov. Judge endorsed the proposal and signed the bill into law.

Wild Horse Island (above) has been an historic landmark in the Flathead Valley since the days of early settlement (F&G photo: Paul Bushaw). Rocky vantage points offer spectacular vistas (below) of the island, the grey-blue waters of Flathead Lake and the surrounding shoreline (F&G photo: Louis Kis). The bighorn sheep (left) population on the island, estimated at 150 animals, has recently been embroiled in controversy. The harsh winter of 1977-78 precipitated a large sheep die-off, raising questions of carrying capacity and population control (F&G photo: Dave Books).

Cost sharing the entire donation with the LWCF allocation to Montana in any one year would severely deplete the capability of other state, city and county outdoor recreation projects to be funded. Therefore, The Nature Conservancy, the MacDonald family and the Dept. of Fish and Game agreed to a phased purchase plan for the island. Basic points of the plan include:

(1) For this purpose, the island was divided into seven parcels of approximately equal value.

(2) Total cost to the state for purchase of the entire island will be $1.75 million, one-half of the island's early 1977 appraised value.

(3) The state will consider purchase of the parcels one at a time in a predetermined order. Each parcel is anticipated to be cost shared by the LWCF, annually allocated to states by Congress on Oct. 1.

(4) By law, the Fish and Game Commission must approve all the land transactions.

(5) Any appreciation in value of the island would also be donated to the state.

(6) The Dept. of Fish and Game would receive a lease for the portion of the island not owned, free of charge, until the entire purchase was completed.

In December 1977, the Fish and Game Commission approved acquisition of the first parcel. The actual transaction was completed in early 1978 by the state and the lease for the remainder of the island was approved by the Fish and Game Commission at its Feb. 22, 1978 meeting. The commission approved acquisition of the second parcel on Sept. 29.

The remainder of the parcels

will be considered for purchase by the Fish and Game Commission as LWCF appropriations are made to the state.

Since the day the MacDonald family offered the island for sale and H.B. 836 mandated its purchase by the state, Montanans have asked many questions. Where is Wild Horse Island? Why was it purchased? Will it be developed? Who will have access? Do wild horses roam the island? If not, did they ever? Because of the fact that some private lots remain on the island, some people have asked what covenants exist and what restrictions will be placed on public access and recreation.

To answer some of the questions requires knowledge and understanding of the island's history. Wild Horse Island has always been a natural showcase, and its history is vivid, dating back to the 1800s when it was claimed by the Flathead Indians. (The Flatheads became part of the Confederated Salish and Kutenai tribes when many Indians on reservations incorporated in the mid-1930s.)

Although there are discrepancies in the reports, accounts and records, the island has been an historic landmark in the Flathead Valley since the days when Indian activities on the island gave it a name. In the 1940s some elderly Flatheads recollected the story this way: Long before white men entered the valley, the Flatheads were losing many horses to the Blackfeet. Blackfeet braves would cross the mountains in the area that is now Glacier National Park to take the Flatheads' horses. In an attempt to protect their valuable steeds, the Flatheads finally resorted to hiding their horses on a huge island near the west shore of Flathead Lake. They would swim their horses to the island when threatened by the Blackfeet, and attempt to round the horses up after the threat subsided. However, the roundup was not an easy task because of the size of the island and the hiding places it afforded. Many horses were not retrieved and the island received a name: "Wild Horse Island." There are also other colorful accounts of how the island received its name.

Congress authorized a survey of reservation lands in 1904 that resulted in establishment of land allotments for Indians. Wild Horse Island was (and still is) within the exterior boundaries of the Flathead Indian Reservation. However, a special act of Congress authorized sale of the island into private ownership. As a result of this congressional action, "villa sites" were established along the shores of Wild Horse Island during the five or six years following the congressional order.

It was not until 1910 that homesteading lands were offered to non-Indians under "Squatters Law." In his book, "Wild Horse Island," Edward B. McCurdy described Herman Schnitzmeyer, one of the first homesteaders who tried his luck on the island. After he couldn't make a "go" of it, Schnitzmeyer moved to Polson in 1914 to become a "perfectionist in his photography." One of his most noted photos showed Kutenai Chief Koostata (or "Kustata") on the shore of Flathead Lake.

Other homesteaders included a cattleman who ran 100 head of stock on the island and a dairy-farming family that delivered mail between the island and Dayton by boat.

After homesteaders packed up and moved on, the federal government conducted a surplus land auction in 1915 to dispose of the properties on Wild Horse Island. Over half of the island was purchased by Col. Almond A. White, and the colorful history of the island as recreational property began. White paid $15 each for most of the lots, with a few selling for $50.

White, a Minnesota native, intended to establish a boys' school, a large hotel and a power plant on the island. A well-known land developer and speculator of the era, White purportedly gave prospective customers free rides from Glacier National Park to the island, attempting to make a sale. But because of poor response from the tourists White lured to the island, sales rarely materialized and the property went to the auction block in lieu of delinquent taxes owed the federal government.

The next major shareholder in the unfolding ownership of Wild Horse Island was a native New York parson, the Rev. Robert Edington, who had relocated in Dayton. Edington left his mark as

Several homesteaders tried their luck on Wild Horse Island in the early 1900s, but all had packed up and moved on by 1915. F&G photo: M. Ann Miller

the man who built Hiawatha Lodge, a dude ranch on the east side of the island. (The MacDonald family owns the remnants of Hiawatha today.) The dude operation, which began in 1931, catered to wealthy eastern tourists who could roam the entire island to observe wild animals and the unmatched scenery.

Lewis Penwell of Helena bought the island in 1940, according to a newspaper account published shortly after the purchase. He planned to construct buildings on the south side of the island to house saddle horses he hoped to breed and train. Penwell continued to operate Hiawatha as a dude ranch, after completely renovating it and adding a 10-×70-foot dock and a 150-horsepower boat so tourists could cruise the lake or water ski if they so desired.

Since many visitors sought the natural areas where wildlife resources afforded pleasing aesthetic rewards, Penwell decided to establish a game and bird preserve. In spring 1940, he petitioned the Montana Fish and Game Commission for permission to stock deer, elk, mountain sheep, antelope and game birds. According to a Great Falls Tribune account at that time, native deer and "more blue grouse than any other locality of similar size in the state" were already inhabiting the island. Another newspaper reported the first wild turkeys were planted on the island during December 1940 and "all the newly acquired game seemed to be thriving." That included antelope, deer and game birds.

Sometime between 1941 and 1943 (depending upon the source), Dr. J.C. Burnett purchased all the island properties. He reportedly developed a fine line of horses from Arabian and thoroughbred stock. A severe winter in 1955, accompanied by overgrazing, resulted in much of the wildlife and many of the feral horses starving. One report stated that nearly all of the horses perished. However, another report stated that two horses and a mule survived. Still another account mentioned that after Burnett's death in 1959, three horses, a mule and other animals went up for sale along with the island.

There was considerable public debate when the island was acquired by Bourke MacDonald in 1961. The University of Montana competed with MacDonald for purchase of the property with the idea of using it for wildlife research. In the end, MacDonald prevailed and purchased the entire island.

He worked with the Dept. of Fish and Game following the purchase. He encouraged the public to visit the island to photograph its outstanding wildlife resources, but banned dogs, smoking, campfires and hunting.

continued

One of his chief concerns was to protect the wildlife.

Shortly after he purchased the island, MacDonald announced plans which included selling lots on the south and west shores, the areas shielded from harsh north winds and high waves. These areas also offered better sites for boat docking than the rockier north shore.

Originally, MacDonald planned to sell 166 lots and to develop coves on the east and north shores for public access away from the private property. However, only 49 one-acre or one-half-acre lots were sold; 10 lots were retained by the MacDonald family. The lots were circular to protect the owner's privacy; also, areas outside the actual lots could serve as buffer zones against development. The lots were located 10 feet above the high water mark to protect the shoreline from development.

In the end, 41 families purchased lots (some bought more than one). Strict covenants were established to preserve the island's natural character.

Today, 14 cabins exist on the island, in addition to Hiawatha Lodge, the future of which is uncertain because of its poor condition. Twenty-six lots are owned by Montana families while other owners come from California, Arizona, Washington and Idaho.

Following the death of Bourke MacDonald in 1973, his heirs sought a buyer who would ensure long-term preservation of the island as a resource for future generations of Montanans to enjoy. This complicated transaction has been confusing to many and misunderstood by others. What plans are in store for it? What uses will the public be able to make of it?

A 1970 Dept. of the Interior report, "Islands of America," encouraged state ownership for protection of a phenomenal recreational and educational area. The report recommended acquisition of seven particular islands to meet the recreational, scenic, wilderness, historic and scientific needs of the public. Wild Horse Island was one of those named.

Now that the state, through the guardianship of the Dept. of Fish and Game, has the challenge of management before it, how will the public desires be met? At the same time, how will environmental quality be maintained? Who will be making the final decisions about the future of Wild Horse Island?

To assure public participation in the management planning process, Dept. of Fish and Game Director Robert Wambach asked several groups to assist the department and commission by serving on a planning task force to make recommendations for the island's future management. Eleven of 12 invited accepted. The group's responsibility was to make management recommendations to the department. Since Wild Horse Island is within the state park system, the Parks Division was given the lead for formulation of the plan. Members of the committee include personnel from state and county agencies, wildlife experts, a newspaperman, environmental group representatives, representatives from the University of Montana, a delegate from The Nature Conservancy and a member of the Wild Horse Island Lot Owner Assn. The committee began to define the goals for future management of the island at a planning meeting in Kalispell on April 8, 1978.

During that first meeting, the committee adopted Dept. of Fish and Game recommendations to prohibit fires, overnight camping, firearms, pets and smoking on the island for one year. In addition, all applicable laws are to be enforced. These guidelines were devised to fill the gap until Jan. 1, 1979, the deadline for the long-term management plan. The interim proposal for management of the island was approved by the Fish and Game Commission during its April 1978 meeting,

Many species of birds and animals occupy Wild Horse Island, including the killdeer. Because of its relative isolation, the island is a natural outdoor laboratory for research and teaching (photo: Danny On).

with one exception. The commission did not ban smoking.

The task of creating a long-term plan won't be easy. For instance, how should the bighorn sheep population be kept in balance with the carrying capacity of the limited land mass? Some biologists believe that a population closer to 75 animals—versus the 150 (plus last spring's lambs) that survived one of the heaviest winter mortality tolls the island has ever experienced—would be closer to a proper balance. If future management calls for fewer sheep, how will the planners choose to reduce the population—by trapping and transplanting, introduction of predators, hunting or other methods?

Winter 1977-78 brought the issue of carrying capacity into the living rooms of many Montanans as news of a die-off was reported. Artificial feeding suddenly became a real issue. In response, the department initiated a program of air lifting rations of hay to the weakened herd. For many bighorns, the hay meant survival. Others fell to one of nature's balancing acts—death from malnutrition. But a perpetual problem exists: How can the sheep population be kept in balance with the carrying capacity?

What about using the island for intensive research? Although it was purchased primarily to maintain its unique qualities for recreational use, research will be considered in the management plan. In the past, the island has been utilized for various research projects, including master's degree bighorn sheep studies. Studies have focused on sheep, deer and nongame animals during winter and summer. One study investigated the lambing tendencies of the bighorn sheep on the island. Many observations of birds—ravens, bald eagles and golden eagles—have been documented through research by students in the university system.

Questions such as provision of boat docks, sanitary facilities, management funding, transportation to and from the island, wildlife management—and many others—will continue to be addressed. When Jan. 1, 1979 arrives, the public will have a chance to see the department's "plan of action," which will consider the committee's recommendations. Then, the plan will be taken to the public in a series of meetings, tentatively scheduled for Polson, Kalispell and Missoula. A final hearing before the Fish and Game Commission will occur, probably in late winter.

Regardless of the solutions, allow your imagination to wander along the beaches of the island. Shudder at the harsh winters the island has seen. Try to envision the Blackfeet-Flathead confrontations. Seek refreshment from the rigors of everyday life on an island filled with enough secrets to keep the soul and mind provoked for a lifetime. ■

Contributors

Call it intuition if you wish, but sometimes you just *know* that a certain gift under the Christmas tree is going to be very special. "Diary of a Christmas Hat" is the story of such a gift—and the adventures that unfold when a boy about to become a man wears the hat. Skunks, angry owl parents, a confused buck, a spirited Lab pup and other creatures are also part of the outdoor "diary." For the unraveling of a heart-warming holiday tale, turn to **Ken Walcheck's** article on page 8.

Seeing a flying squirrel is no everyday occurrence—it is so strictly nocturnal that many people are not aware of its existence, even in areas where it is common. But if you're lucky enough to spot one on a late summer night, the aerial display could be well worth the wait. For more details about the "Aristocrat of the Squirrel Family," turn to Walcheck's article on page 20. He is the department's information officer in Miles City. He was recently appointed a trustee of the Miles City Community Library.

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As **Bob Kiesling** and **Bill Schneider** write, "Rural Subdivisions and Wildlife Don't Mix." They further note that figures from state agencies indicate the rate of subdivision has not been brought under control, but has actually increased. Their article urges examination of subdivision laws because of the existing loopholes that allow many developments to "proceed without adequate review." As they write, "These loopholes should be repaired: The fate of much valuable wildlife habitat and prime agricultural land hangs in the balance." Kiesling is the staff director for the Environmental Information Center, a Helena-based citizens' group. Schneider, who edited *Montana Outdoors* for nine years, has joined Director Robert Wambach's staff as special projects coordinator.

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"A good deal of accurate information is necessary to manage just one wildlife species," **John P. Weigand** writes, and one way of obtaining information is via questionnaires mailed to hunters. Success of these surveys depends heavily on the hunter's cooperation in completing and returning the form. Weigand also emphasizes that it's important for both unsuccessful and nonhunters to return their questionnaires because they may have useful information to offer. For more details on "Harvest Surveys: How You Can Help," turn to page 33. Weigand is the fisheries and wildlife biologist supervisor for the department's Research Bureau in Bozeman. He is also the president-elect of the Montana Chapter of the Wildlife Society.

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MO wishes to extend a special thanks to **Jerry Manley** for his series of wildlife photographs, "Montana Montage," beginning on page 15. Readers have enjoyed his photographic contributions in the past, and we're certain those contained in this issue will only enhance that reputation.

Diary of a Christmas Hat

by Ken Walcheck
illustrations by Vern Craig

CHRISTMAS MORNING, 1947. Something about the shape of that package under the Yule tree caught my eye. Call it intuition if you wish, but I had a feeling this gift was going to be a little bit special. Even though I was nearly 16, I unwrapped the brightly decorated present in a flurry of excitement. There it was—a grey knit Norwegian ragg hat.

It was a case of love at first sight. A folded piece of paper tucked in the sweatband by the manufacturer stated this "exquisite piece of merchandise is crushproof, practically indestructible, guaranteed to give adequate protection from the elements and despite any rough treatment, still stylish enough to impress the ladies at the local saloon on Saturday night."

I remember how I put it on, pulling it down to my eyebrows and parading around the house like a youngster with his first pair of cowboy boots. As a budding outdoorsman, I was not old enough to appreciate the fact that, like fine wine, a hat such as this needed proper aging.

That's when I found a second note hidden in the sweatband:

Dear Son:

To properly season your hat with the right blend of character and distinction, I would recommend the following treatment:

Mix equal parts of Hoppe's No. 9 and grouse, goose and deer blood with three tumblers of top-shelf bourbon.

Stir gently and add one ripe catfish, seasoned with dried beaver musk.

Soak hat in conditioning brew for 48 hours and then place in smokehouse for eight hours for proper curing.

When hat is dry, let ol' Red drag it through a briar patch and then stomp on it several times to simulate a typical field outing.

Reshape and garnish with a pheasant tail feather, a half dozen trout flies and a six-inch turkey beard.

Love,
Dad

I couldn't really appreciate those words until I had tromped over the countryside on countless hunting and fishing trips, always accompanied by my faithful hat.

I remember the campfires my hat fanned into life on fishing trips in Alaska and Saskatchewan, how it was used as a watering dish for the dogs on warm days afield for grouse in eastern Montana, how it served as an insect net to catch 'hoppers for fishing bait and how I left it overnight on a sagebrush shrub after losing my young yellow Lab when she took after a jackrabbit hellbent for Texas.

I remember the adventures my hat and I shared—like the time I instinctively threw it at a rattler that I nearly stepped on. And the time I used it as a glove to separate a black Lab and a Chesapeake engaged in a snarling fight to the finish. Then, there was the duck hunting trip when hurricanelike winds overturned our canoe and dumped us into the frigid waters of a large lake. After frantically waving my Norwegian distress signal for what seemed an eternity, help finally came our way.

Many pleasant memories are woven into the wool fibers of my trusty companion, along with a few unpleasant recollections—such as the confrontation near Beaver Creek. I learned the hard way just how offensive certain four-legged fumigators can be.

Evening shadows still laced the landscape when a

fishing companion and I vaulted a pole fence right into the middle of a family of skunks. Time seemed to stand still. A song sparrow on a nearby alder stopped singing. A couple of horses in the pasture lifted their heads in anticipation of events to come. It was a moment of decision, and we made the wrong one.

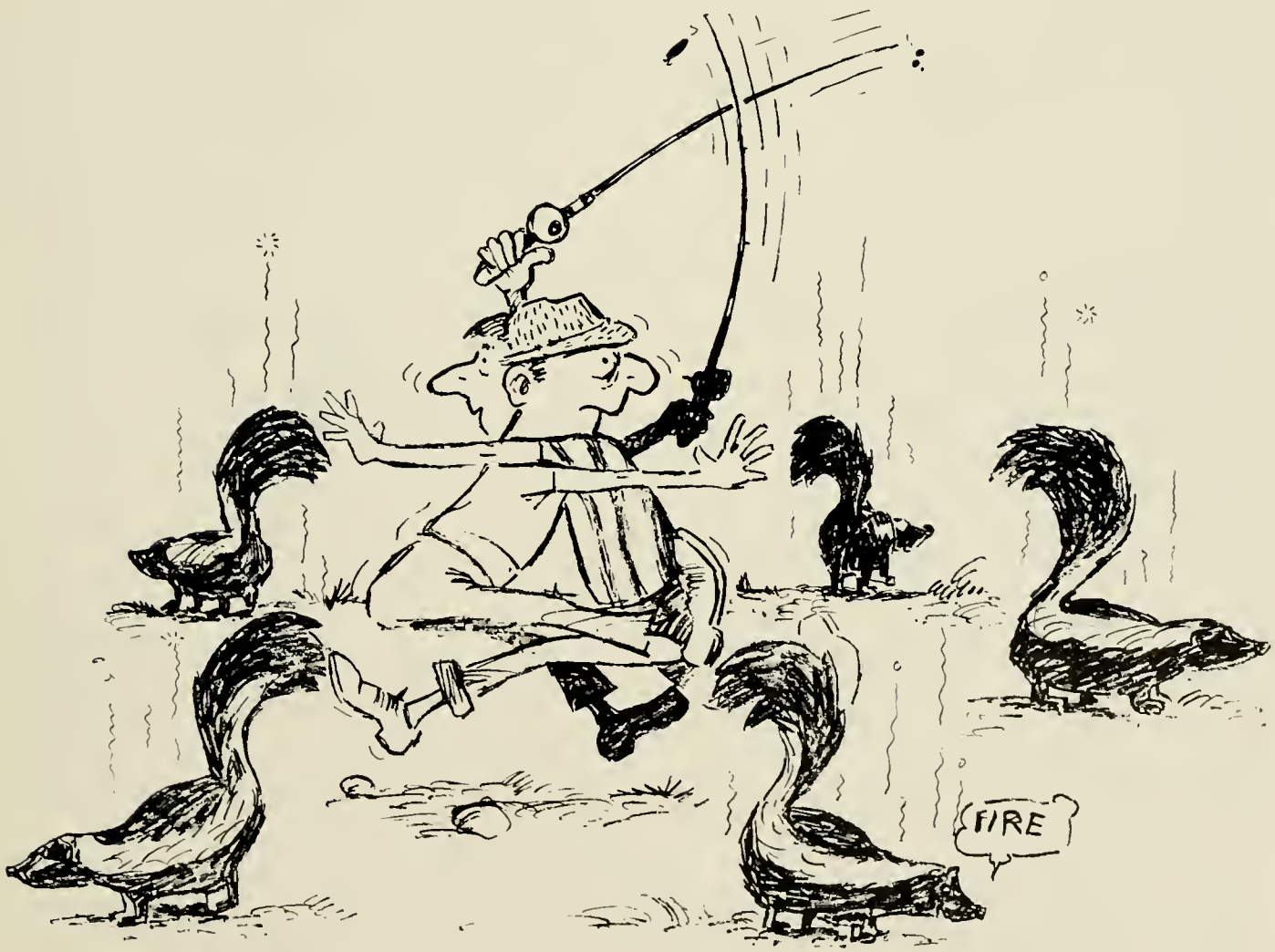
Instead of standing our ground and allowing the skunks to go their way, we turned to flee. That decision might have been okay if we hadn't spun around and run into each other. Down we went, arms flailing and legs churning. As if on cue, the five skunks—a mother and four half-grown youngsters—put their backsides to use and all 10 guns fired several salvos at pointblank range.

I covered my face with my hat as the stinging, acrid fluid slammed into us. With eyes burning and lungs screaming for fresh air, we scrambled for the creek, bellowing, cussing and retching every step of the way. Water helped some, but time would be our only salvation.

After returning home, I buried my clothes but didn't have the heart ta say good-bye to my most cherished possession. The hat was temporarily retired to a bucket filled with a mixture of tomato juice and ammonia, rinsed and then hung in the garage for a three-week period of recuperation before it was again ready for service.

The following year, my hat and I shared the great horned owl encounter. On a warm March day, I decided to shinny up a large cottonwood to check on a newly discovered owl's nest. I had climbed about 20 feet when one of the parents glided past and landed in a nearby tree. There he sat, glaring at me with large, yellow eyes and swaying from side to side with wings partly spread, looking as big as a stuffed potato sack. The picture of savage rage was completed as the bird furiously snapped his beak. Feeling a touch of apprehension, I continued climbing as the owl's mate flew in; soon there were angry outbursts from both. The feathered projectiles flew from tree to tree, zooming past me and constantly hooting in deep, subdued tones.

When I reached the nesting cavity, I felt the swoop of powerful wings. Then, a savage blow to my shoulder



almost knocked me out of the tree. Next, I felt a terrific stab of pain on top of my head, which dazed me and sent my ragg hat spinning to the ground. After this attack, I half slid and half fell down the side of the cottonwood to the forest floor. When I gently probed the top of my head to check for damage, I found two ugly wounds from which the blood flowed freely. I'm certain the owl's talons would have inflicted more serious harm if it had not been for my ragg hat.

That same year, my faithful friend played an important role in bagging a nice five-point buck. During the last week of the season, five of us boated to a large island on the Yellowstone River to hunt whitetails. We drew straws to determine who the standers and drivers were going to be and I lucked out in drawing one of the standing positions.

After trekking around the outside of the island to reach my post, I faced a dilemma. Two well-traveled deer trails about a hundred yards apart came down to the river's edge. One led into a thick stand of willows and the other angled off in a westerly direction. There is nothing like making a firm decision when selecting a deer stand. Any uncertainty about your choice gnaws at you so that in time you become uneasy and wander off seeking a better spot.

When I lifted the brow of my hat to make my decision, I knew I had the answer. My dad had once told me an old trick that sometimes worked in bagging an elusive whitetail buck. I walked over to the trail leading to the willow patch, removed my hat and placed it on a willow stub about four feet off the ground. Then I walked over to the other trail and positioned myself.

When the drivers headed my way, I heard the sound of a heavy-bodied animal running through the woods. A few seconds slipped by, and then I glimpsed a buck running full throttle in my direction. Suddenly he stopped short, perked up his ears and looked back at the drivers. After pausing for a second or two, he was on the move again, bounding down the trail that would take him to the willow patch—and security.

When the grey-bodied, massively antlered buck saw the hat fluttering in the breeze, he tried to reverse gears, skidded to the ground and ended up on his back with legs pawing the air. In a second, he was on his feet, running in my direction, white flag flashing. I swear I still can see the bewilderment in his eyes as he raced toward me in majestic splendor.

There comes a time when all good friends must part. Today, my faithful companion huddles in the garage, a mere skeleton that once was my outdoor diary. What happened to my old wool friend was entirely my fault. Its demise occurred after I had carelessly placed it on our backyard picnic table. My young Lab, with zestful gusto, pounced on it and reduced it to a tattered heap of shapeless wool. Since that tragedy, I have felt half-naked and incomplete during my outdoor sojourns.

I am, however, optimistic about the future. Christmas 1978 is right around the corner. Surely, with an understanding wife and four sons, there should be a fair chance of finding a special Christmas package under the tree. And who knows, it might even contain a grey knit Norwegian ragg hat. ■

The Catchall

Increase in Fishing License Dollars Needed

In view of Proposition 13, perhaps this is the wrong time to ask for an increase in fishing license fees. But, because the fish management program is no longer able to keep pace with inflation, that's exactly what we have to do.

From 1967-76 (the latest year for which we have complete sales information), our income from fishing license sales increased approximately one and one-half times, due primarily to an increase in the number of license buyers. During the same period, our major operational expenses, such as fish food, trucks and salaries, increased an average of 2.1 times. The *U.S. Consumer Price Index* also increased 1.8-1.9 times over that 10-year period. Thus, in essence, we now have only 1.5 times our 1967 income to meet costs that have increased 2.1 times. We have managed to cope with increased management responsibilities only by securing special funding from nonlicense sources for some studies, delaying needed maintenance and construction projects and diverting some hunting license dollars to the fisheries program.

Stated in dollars and cents, income from fishing license sales in 1967 was $1,028,700, none of which was earmarked for land purchase. Using the index, the dollars necessary to provide the same buying power in fiscal 1981 will be $2,343,400. Our projected income for fiscal 1981, based on the current license fee structure, is $1,800,000—more than one-half million dollars short of the amount we will need just to meet *operating expenses.*

The last raise in fishing license fees was in 1974, when the resident fishing license fee was increased from $4 to $5 and the nonresident fee from $15 to $20. These $1 and $5 increases were earmarked strictly for acquisition of fishing access areas; thus, they provided no additional revenue to cover rising costs of other operations. The last raise in fishing license fees that provided additional revenue for operational costs was in 1967, when the fees went from $3 to $4 for residents, from $3 to $5 for the nonresident six-day license and from $10 to $15 for the nonresident seasonal license.

The accompanying table shows the license increase proposal that will be presented to the 1979 Montana Legislature. The increases, if implemented, will not be effective until fiscal 1981.

Most of Montana's fishing license fees are low compared with those of the 11 other Rocky Mountain states that also offer good trout fishing. Although that in itself is not justification for an increase, it is interesting to note that our proposal will not make our fees out of line with other states.

At $5, Montana and Wyoming now currently have the *lowest* resident license fees of the 12 states. (Wyoming is proposing an increase to $10.) Alaska and Nevada are highest, at $10 for a resident license. Idaho's and Montana's $20 seasonal nonresident licenses are also the *lowest* of the twelve states. Again, Alaska's is the highest at $30; four other states charge $25 for this license. With Utah, we currently share the *lowest* nonresident daily fishing fee of $2. The highest fees charged for this license are $5 by Alaska and $3.25 by New Mexico. Only in the daily cost of our nonresident six-day license ($1.87) is Montana near the top of the 12 states. In this fee, we are exceeded only by New Mexico ($2.20 per day) and Colorado ($2 per day).

The six-day nonresident license, however, provides less than 20% of our fishing license income. Thus, in the licenses that provide more than 80% of our income, our fees are among the lowest of the 12 Rocky Mountain states. In fact, no other state shares the lowest position in all three categories of resident, nonresident seasonal and nonresident daily licenses.

So, while we dislike having to ask for a license fee increase, we think you will agree that the increase is necessary and overdue. With this increase, we can maintain our present level of fisheries management; without it, we will have to reduce some of our programs.—*Art Whitney, administrator, Fisheries Division*

PROPOSED LICENSE FEES AND PREDICTED INCOME FOR OPERATION OF FISHERIES PROGRAM AND ACQUISITION OF FISHING ACCESS SITES

License type	Cost	Earmarked for land purchase	Income for other fisheries operations
Resident	$ 7.50	$ 170,700	$ 1,109,500
Resident conservation 62 or older	1.00	0	30,300
Nonresident 1-day	4.00	160,200	480,600
Nonresident 6-day	15.00	110,500	221,000
Nonresident seasonal	30.00	68,000	340,000
Nonresident conservation	2.00	0	215,000
TOTAL		$ 509,400	$ 2,396,400

A Bake Sale for Nongame Wildlife

A bake sale might not be the most original way to raise money for various causes. But it is a winner, as

recycled paper

the Up-N-Atom 4-H Club of Poplar found out. The club recently presented the department with a check for $35.81 for use in our nongame program.

A junior leader of the all-female club attended a recent Helena Citizenship Seminar and as part of the program heard a presentation on nongame animals by Vince Yannone, assistant chief of the department's Conservation Education Bureau. She was impressed with what she heard, so she met with the other junior leaders of the Up-N-Atoms and they decided that raising money for nongame animals would be worthwhile.

Yannone said he's not sure how the money will be used, but the department appreciates the club's initiative in conducting a bake sale for nongame wildlife.

The group's junior leaders include Corrine Kaschube, Wanda Swank, Carol Swank, Deanna Dahlberg and Maureen O'Brien.

Tribute to Wynn Freeman

Wynn Freeman, administrator of the department's Wildlife Division, died at his home in Helena on Sept. 2. He was 58 years old.

A widely respected wildlife professional, both in Montana and nationally, Freeman began work with the department in 1948 as the statewide waterfowl biologist. Under his leadership, the department developed a progressive waterfowl management program which included splitting of the state into the Pacific and Central flyways in 1961, and revising the boundaries in 1965 to their present status. His work on behalf of sportsmen and Montana's waterfowl resource continued throughout his tenure with the department. He also served as the Central Flyway Council's consultant to the U.S. Fish and Wildlife Service Regulations Committee.

A number of small game and waterfowl areas in Montana were developed under Freeman's supervision. Freezout Lake near Fairfield is probably the most notable, since it has become one of the best such areas in the West. He also gave strong leadership to acquisition of winter game ranges, such as the Blacktail southeast of Dillon, and the Beartooth north of Helena.

Freeman served the department, Montana's sportsmen and the state's wildlife resource in a variety of capacities. In 1950, he was promoted to senior biologist. In 1953, he became the department's assistant federal aid coordinator, and in 1957, federal aid coordinator. In 1960, he became the state small game manager and, in 1963, administrator of the department's Game Management (now Wildlife) Division. He continually endeavored to promote a sound wildlife management program based on the highest ideals of resource use, management and perpetuation. In fact, the Montana Fish and Game Commission recently recognized Freeman for 30 years of dedicated service to the department.

A native of Brigham City, Utah, Freeman was graduated from Utah State University in Logan with B.S. and M.S. degrees in wildlife management. He attended Columbia University under the U.S. Navy Midshipman's Program in 1943 and served on active duty with the Navy until 1946 in the Philippines and British Solomon Islands. He was a member of the Naval Reserve and served as commanding officer of the Butte Naval Reserve Unit. He was also the state naval liaison officer for civil defense.

Freeman was active in the King Solomon Masonic Lodge in Helena, the Algeria Shrine, the Helena Elks and Ducks Unlimited. He was also a member of numerous professional

Wynn Freeman

organizations, including the Montana Chapter of The Wildlife Society, the Western Assn. of State Game and Fish Commissioners and the Central Flyway Council. In 1976, the Montana Chapter of The Wildlife Society named Freeman "outstanding professional in the field." This was the first time in the organization's history that such an award had been presented.

The Dept. of Fish and Game's wildlife management program is recognized nationally as one based on sound biological principles and work by dedicated professionals. Freeman nurtured this program and continually insisted that high standards be maintained. His skillful leadership through the years included many extra personal contributions and efforts that indicated the devotion with which he served the department and Montana's wildlife resource. His loss is keenly felt as a personal loss by those who served under his leadership and by his many friends and professional acquaintances.

He is survived by his wife, Constance, of Helena; four stepchildren; his parents, Mr. and Mrs. Alf Freeman, of Brigham City; a brother, Don, of Ogden, and a sister, Mrs. Loa Hunsaker, of Bakersfield, Calif.

Moose or Elk-- Know the Difference

Anyone who has ever heard the song, "Bernard the Mule," has been amused by the hapless hunter who mistakenly shoots a mule thinking he is bagging a moose.

A similar situation is of growing concern to the Dept. of Fish and Game. Each fall, moose are bagged by hunters actually pursuing elk or some other big game animal. Exact figures on how many times this happens are unavailable but, recently, reports of abandoned moose have been turned in with increasing frequency. In some cases, the hunter has reported the situation himself.

Since harvest quotas for moose are largely based on the number of animals available beyond the number needed to maintain a viable breeding population, the illegal or inadvertent kills reduce the quotas available to the legitimate hunter. The average hunter has to wait several years to secure a permit to hunt a moose. Unfortunately, this waiting period is increased and his odds of receiving a permit are drastically reduced by the unethical or uninformed hunter.

Many factors contribute to the problem. Quite a few hunters have never seen a moose in the wild, and some apparently conclude that any large elk-like animal *is* an elk.

Visibility is often less than ideal on a hunting trip. Early morning and

late evening are good times for sighting game, but they do not always provide the best light for distinct observation. Late season snowstorms sometimes reduce visibility to nearly zero.

Many hunters also have misconceptions about where moose will be found. Many are surprised to find moose high in mountainous terrain. A common image is the traditional post card scene where the moose is standing chest deep in a lake eating lily pads. While this situation is not unusual, one can expect to find a moose almost anywhere in a forested area.

Everyone has observed mounted moose heads in bars or restaurants, almost always adorned with massive racks and long beards or "bells." It is not so simple in a field situation where the first moose the hunter encounters is a young bull or cow. The cow does not have antlers and a young bull does not have the typical massive, palmate rack that one most commonly sees on a mounted head. The young bull frequently possesses spike-type antlers, or a cluster of spikes; the animal can resemble an elk if the hunter relies solely on antler appearance for identification. If one uses only body configuration for identification, the calf moose can be confused with a calf elk. The lesson here is that no one characteristic should be used in identifying game animals. Antler form, hair color and general body conformation used collectively will give the hunter a much more realistic picture of his target.

ELK

MOOSE

The color of an elk's body is much lighter than a moose's. The elk's color ranges from tan to light brown and it has a distinctive yellowish rump patch. The neck area from the head to the brisket is a dark, chocolate brown; this hair is much thicker than the body hair. In contrast, the moose's color is much darker, from dark brown to black over the entire body. It does not have the light rump patch characteristic of the deer family.

Moose also have longer legs and appear more lanky and awkward than elk. The mature moose has a turned-down muzzle—it looks as if the end of the nose melted and drooped. The elk's muzzle is more streamlined and symmetrical.

If the hunter has any doubt about his ability to distinguish moose from elk (or from any other game animal), it would benefit him and his fellow hunters if he did some homework. A library offers numerous pictures and information about game animals. Following the library session, the hunter should take a field trip, before hunting season, to view the animals under field conditions. This results in useful information on the terrain and cover the animals use, as well as providing a firsthand look at them. These activities don't require much of the hunter compared with the benefits that will result.

Regardless of the factors that contribute to the hunter's problems in distinguishing moose from other game animals, he has a legal and moral responsibility to *know the difference*. Hunting should be ethical, and the single greatest challenge is for the hunter to know precisely what he is pursuing. A successful hunt should not be entirely relegated to bagging the intended animal at any cost. Quality of the pursuit, experience gained, proper handling of hunting equipment and the general ability of the individual to cope with and appreciate the privilege of hunting an animal should be very important parts of the hunt. Bagging an animal should simply be frosting on the cake.

The hunting opportunities

available to any individual hunter are drastically influenced by the attitudes and conduct of all hunters. We should endeavor to "do our thing" in a way that contributes to our fellow hunters' opportunity, rather than subtracting from it.—*Arnie Foss, Region 3 (Bozeman) wildlife manager; Jim Heck, warden*

Lewis Receives Enforcement Award

The department's associate director, Orville Lewis, recently received an award from the Midwest Assn. of Fish and Game Law Enforcement Officers for "significant contributions to the advancement of the organization."

The special award is not presented regularly, but when the organization believes it is merited. Lewis was recognized for the outstanding

Orville Lewis

support and guidance he has given the organization in his many years as a member.

Lewis was named associate director of the department in July 1977; previously, he was the administrator of the Law Enforcement Division.

Law enforcement officers from 22 states and provinces belong to the association. Its objectives include encouraging and developing cooperation among members to promote high standards and practices to ensure impartial and efficient service.

Department Publishes Special Parks Issue

Readers of *Montana Outdoors* will be pleased to know the Dept. of Fish and Game will publish its second special issue in December; this issue will be devoted to a discussion and description of the state parks system in Montana.

Spearheaded by the department's Parks Division and with technical assistance from the *MO* staff, the special "Parks Issue" will be sent to all subscribers as part of their regular subscriptions and will be available at newsstands throughout the state. The special issue will cost $1 per copy. The department published its first special issue focusing on the Yellowstone River in February 1977.

Articles in the "Parks Issue" will deal with the history of Montana's state parks system, operation of the Parks Division, types and sources of funding which support the system and the various types of areas of which the system is composed. Also included will be an account of the many recreational opportunities within the state parks system, discussions of the Parks Division's administration of the federal Land and Water Conservation Fund and the state's snowmobile program, and a section by Gov. Thomas L. Judge concerning the future of the state parks system in Montana.

Included with the special issue will be a "Montana Recreation Guide" map showing all the areas within the parks system and brief directions for locating them.

All articles in the special issue, except the governor's and the "Montana Recreation Guide" have been written by Parks Division personnel. Bill Phippen, former *MO* intern, is special editor for the project.

Wildlife Shorts

Belted kingfishers excavate holes—four to eight feet long—to their nest chambers.

*****

The air bladders in fish serve as depth regulators, balance mechanisms and noisemakers.

*****

The "fireweed" is so called because it frequently grows in burned areas.

*****

Flounders are salt-water, bottom-dwelling fish. Their bodies are flattened so the fish rests on one side. In the adult stage, both eyes appear on the upper side of the fish. What makes this fish so interesting is that young have one eye on each side and swim like other fish. In the course of a few weeks, one eye travels over the top of the head to join its mate and the fish then rests on one side like the adult.

*****

One of the most common lizards in Montana is the short-horned lizard. It is about four inches long, spiny, squatty and short-tailed. It inhabits semi-arid, short grass plains and prefers the sandy, rocky terrain common to eastern Montana.

There are several ways to tell a male turtle from a female. The male's tail is usually longer than that of the female and the anal opening is often situated further out on the male's tail.

*****

The opossum is the only marsupial (pouched mammal) in North America. In recent years, it has extended its range north but is not found in Montana.

*****

One of the most common and least loved birds in North America is the starling. It was unknown in this country until its irresponsible but deliberate introduction in 1890 into New York City from Europe.

*****

Some of the oldest known fossils of birds have been found in Montana. Their skeletons showed them to be about five feet long, flightless, aquatic and with teeth.

*****

One of the longest incubation periods for birds is that of the ostrich, which ranges from 42-60 days. For a comparison, small land birds require about 14 days and domestic fowl, 21 days.—*Vince Yannone*

Montana Montage

Jerry Manley claims to have been born in "Butte, America" 34 years ago and he's lived there ever since. Although outdoor photography is his favorite "vocation," he also operates an upholstery shop and a carpet and furniture cleaning service. He manages to take off five or six weeks every year and counts an annual trek to Alaska among his favorite photo expeditions. Part of his skill in judging the quality and accuracy of a wildlife photograph might well come from his experience with Jack Atcheson & Sons, a Butte taxidermy firm. In addition to frequent contributions to Montana Outdoors, *Manley's work has also appeared in* Outdoor Life, National Wildlife, Peterson's Hunting *and* The American Hunter. *He enjoys outdoor activities and serves on the steering committee for Butte's chapter of Ducks Unlimited. He and his wife Jackie have a daughter Theresa, 9, and a "beautiful" German wire-haired pointer, Vino, age uncertain. Of his picture-taking, Manley says, "Photography is a hobby that can pay for itself. If my pictures generate controversy about Montana and get people talking, that's okay with me. We have to take care of Montana now; worrying about the state's future 10 years from now will be too late."*

continued

Aristocrat of the Squirrel Family

by Ken Walcheck

AN EVENING WIND stirs in the forest, brushing away a heavy silence hanging from horizon to horizon.

High above the forest floor, a bright-eyed little animal cloaked in soft, tawny fur emerges from a tree cavity and cocks a curious eye at the outside world. In cool moonlight, black silhouettes lace the landscape as patterns slowly shift and evening shadows crawl across the forest.

Suddenly, the bushy-tailed rodent takes sight on a distant tree, leaps into space with outstretched legs and unfolds its built-in parachute. Once airborne, it flattens into a furry kite. With whiskers aquiver and its flattened, feathery tail acting as a rudder, the nine-inch glider soars downward until it lands with a soft thump at the base of another tree. Such feats of aerial agility are routine to the flying squirrel.

A folded layer of loose skin along each side of the body, from the front to the hind leg, is unique to this mammal. When outstretched, the skin supports the body as the flying squirrel glides from tree to tree.

To take off, it seeks an elevated point, then leaps out into space. Air quickly fills the open chutes and provides the squirrel with a buoyancy which enables it to glide. The distance the squirrel can "fly" depends entirely on the elevation from which it starts. From an altitude of 50 feet or higher, flights as far as 150 feet have been recorded. The squirrel can maneuver instantly, change air speed and manage 90-degree turns by varying the slack of the air-filled chutes. Elongated whiskers serve as a second pair of eyes; outstretched in the dark, the whiskers brush against unseen obstacles and warn of danger ahead. It lands on flat surfaces by swinging its feet upward and digging in with needle-sharp claws.

Flying squirrels are the aristocrats of the squirrel clan. Cousin to the red, fox and gray squirrels, "that remarkable creature the flying squirrel," fascinated early settlers. They reported it could "flie thirtie or fortie yards" and suspected it had "Skinny wings, almost like those of a Batt."

There are two distinct species of North American flying squirrels, with only minor differences between them. The smaller species, the southern flying squirrel *(Glaucomys volans)*, haunts the wood lots and timbered forests of the eastern half of the United States. The northern flying squirrel *(Glaucomys sabrinus)* is larger and is common throughout Canada, ranging south into portions of the western, Great Lakes and New England states. In Montana, the northern flying squirrel inhabits the western part of the state.

When one compares a flying squirrel's anatomical features with those of its cousins, the obvious question arises: What is the evolutionary purpose of the gliding membranes? For hundreds of millions of years, animals—through natural selection—have been perfecting their organs of locomotion (fins, legs, tails, wings) for many purposes, including escape from enemies.

Terrestrial (land) vertebrates have solved the problem of deciding whether to remain stationary, attack or flee in a variety of ingenious ways. The porcupine, rattlesnake and skunk can stand fast in the face of most enemies. The rabbit relies on protective coloration or erupts from its hiding place with rapid zigzag movements. For the flying squirrel, the gliding membrane was probably an evolutionary design to help it better cope with avian (bird) or furred predators. While ecological fitness furnishes the clue for a species' success or failure, much of the understanding for successful adaptations such as gliding membranes still remains unknown to man.

Unlike their vandal red squirrel cousins, flying squirrels have a gentle disposition and rarely bite or scratch. Flying squirrels mate in late winter and, about 40 days later, the female gives birth to from two to five young. Like their larger relatives, flying squirrels live on nuts, seeds, berries, insects and carrion. They use woodpecker holes, natural tree cavities, bulky tree nests and sometimes attics and abandoned buildings as dens. They do not hibernate, but stay in their dens during cold or rainy weather.

My first experience with flying squirrels stemmed from an ornithology field trip more than two decades ago. As our class trudged along a faint game trail, a muffled thumping drifted down from the top of a large pine tree riddled with insect borings and woodpecker holes. After shinny-

photo: Tom McBride

ing up to the top and positioning myself on a dead snag, I tapped the tree with the butt of my flashlight and then aimed a bright beam into a woodpecker's hole. Suddenly, I heard scurried movements and a large pair of eyes with a reddish-orange glaze peered out of the cavity. There was a scramble and a shower of miniature hang gliders floated down to neighboring trees.

The second observation occurred on a summer morning when I tapped a purple martin's birdhouse with the tip of a bamboo pole. The first tap provoked rustling and a high-pitched twitter. The second sent an aroused tenant in a frantic, leaping glide to the base of a nearby cottonwood. The squirrel scrambled up to a patch of shadow where it flattened into what resembled a furrowed piece of cottonwood bark.

Flying squirrels are so strictly nocturnal that many people are not aware of their existence, even in areas where they are common. Your best chance of seeing a flying squirrel is during late summer, on a still, moonlit evening, in a timbered area. Find a comfortable seat on the forest floor, remain quiet and be patient. Don't be disappointed if the leaping actors don't show. Sometimes they are temperamental and you might have to settle for the aerial display of the nighthawk as it carves the darkening sky with tapered wings or the pungent, piney fragrance of the surrounding forest.

If the main performers are on cue, they will take center stage with a slight rustle above and then start their aerial displays—shadowy forms gliding through the air, crisscrossing each other's flight lanes. It will be a performance you won't readily forget, and it might very well be impressive enough for you to seek an encore. ■

photo: Jon Cates

Have Yourself A Merry Little Christmas. . .

And make sure others on your gift list do too by sending them a 1979 ***Montana Outdoors*** *Wildlife Calendar. Christmas shopping won't be a problem—no lines, no traffic, no gift wrapping.*

What better way to chronicle the passing of the months than with striking photographs of such species as the sparrow hawk (pictured above), marmot, elk, blue heron, pika and several others.

To order, send $3 for each personal or gift order to: ***Montana Outdoors,*** *Dept. of Fish and Game; Helena, MT 59601.*

Dear F&G

Greyhounds Protect Haystacks

This last winter we found a very good way to keep the white-tailed deer away from our haystacks. We raise greyhounds and found their barking will keep the deer at a distance.

One of our neighbors was having trouble with the whitetails on his second cutting of alfalfa. We told him to take two of these greyhounds and put them in a pen by his hay and his problem would be over. In a couple of days, he came up and said he had chased 68 whitetails off and guessed he'd try the greyhounds. We picked out two, gave them to him and he had no more deer troubles. Their barking even kept the deer away from a small haystack nearby owned by another neighbor.

We feel this is a lot better than killing those poor deer. So how about passing the word around?—*Charles B. Allen; Grassrange, Mont.*

A Fine, Bold Effort

I wish to thank the Dept. of Fish and Game for the tighter regulations of our streams which are suffering from too much pressure. People do not need 10 pounds of fish; we need a two- or three-fish limit for fish that will not survive release.

Also, the department is to be strongly praised for its tough new gas and oil lease policy. The proposed regulations are much needed.

Montana Outdoors is a courageous, very well-put-together educational tool. It has come a long way in the last few years.

The department is fighting courageously to preserve one of the last natural treasures of Montana. Keep up the fine, bold effort.—*Bill Dunham, Helena, Mont.*

A Long Way from Home

I just wanted to write you a note and tell you thanks. I'm a serviceman currently stationed in Germany, but my home is in Montana—which places me a long way from home.

Your magazine has the best articles and photographs of any in its class. I wait for every issue of *Montana Outdoors* so I can remember my beautiful Montana homeland.

Again, I'd like to say thanks for bringing home a little closer to me.—*Sgt. George H. Clawson; Bamberg, West Germany*

An Advance Reward

There is seldom a time when I care to compliment anything bureaucratic, but since a friend called my attention to your Jan./Feb. 1978 issue, I can only rejoice that there have been many times I've kept tongue in cheek when I've heard the Dept. of Fish and Game reprimanded for all known social ills.

Long ago, I took a firm position that if there was a right policy in the controversy of game management, it would likely come from the expertise of the Dept. of Fish and Game; subsequent observation has reinforced that position.

So as one who feels he has never been less than in accord with management policy, I would care to express that over and above believing in the department, I feel that anything I may say in your behalf in the future has been rewarded in advance. Publication of this single small magazine in January has been more reward than I could ever perceive. In a single slick publication, you have compiled and recorded the values of Montana with which I have been blessed and which I hope will someday soon be assured of preservation for all progeny.

This is a fine thing you have done—laying out the pristine value of this land in a comprehensive, encompassing manner. You truly got it all together in January and have added prestige to the hopes of those of us who hope Montana will always truly be Montana.—*Jay Smith; West Yellowstone, Mont.*

Policy on Letters

We welcome comments from our readers. However, we will at times be forced to cut down lengthy letters because of space limitations. We appreciate hearing from you, but if you want us to print your letter, please keep it brief. The opinions expressed in the "Dear F&G" section do not necessarily reflect those of the Montana Dept. of Fish and Game. They represent the author's views only.

Don't Mess Up Montana

In the Nov./Dec. 1976 issue, you featured an article called "The Rock Creek Mine"by Glenn Oakley. The article pointed out that a mining action was going on in one of the main feeder creeks to Rock Creek. This mining action was using cyanide which—as you pointed out and anyone would realize—could be extremely damaging to any stream. Of course, it would be disastrous to such a magnificent body of water as Rock Creek.

I am most interested in what happens because this was my 23rd year of fishing on Rock Creek. It was introduced to me by my late husband, who first fished it in 1914 when he was 7 years old.

Rock Creek has to be one of the most beautiful creeks I have ever had the privilege of fishing and camping beside. Nothing should ever be allowed to damage such a stream. I am also sorry to see the great amount of development that is going on in that area, particularly the Snake Pit. I know what an eyesore it was at Stateline, Idaho and I was hoping that such a mess wouldn't be allowed near the beautiful country around Rock Creek.

In fact, I resent any type of degradation that happens in "my Montana," even though I live in Washington. I was born in Havre, and my middle name is literally "Montana." It is such a great and beautiful state that nothing should be allowed to mess it up.

I think *Montana Outdoors* is doing a magnificent job of bringing the issues to light. It is the best magazine of its kind I have ever seen or read. I began subscribing quite a few years ago and naturally I treasure every copy and will continue to read it as long as I can.—*Mrs. Earl H. Carr; Spokane, Wash.*

recycled paper

Cutting Your Own Yule Tree

by Phil Schlamp
Forest Staff Officer,
Helena National Forest

About 27 million natural Christmas trees will be used this year to help Americans observe a holiday ritual that began in Germany around 1500. Approximately one in three families will buy and decorate a tree as part of its celebration of the birth of Christ, even though at times in the past the practice has been condemned as pagan.

Most Christmas trees used to be cut from wild lands, but now the majority are grown on plantations and are planted and harvested like other crops.

Scotch pine, a plantation tree, is the biggest selling Christmas tree in the United States. This tree, with its dark blue-green needles, is bushy and holds its needles better than most other trees used at Christmas.

In 1977, nearly 3 million Christmas trees were harvested in Montana. This included about 70,000 commercially grown trees from plantations in the Kalispell area. Most of Montana's trees were shipped to markets in California and the southwest. A few even reached markets in Hawaii and Argentina. Lincoln and Flathead counties produce 80-85% of the wild land trees shipped from the state.

But not all Montanans buy a Christmas tree. Each year, some time after Thanksgiving, thousands of people will take to the hills to find that perfect tree to adorn the living room. The most popular wild land trees harvested from Montana's forests are Douglas-fir and alpine fir. Other popular species include lodgepole pine, ponderosa pine, Engelmann spruce and juniper.

The question is often asked if cutting trees is wasteful. The answer is both yes and no. If the tree you cut is suppressed and not expected to produce sawtimber, then its harvest benefits the stand of timber. By cutting this tree, additional growing space for other trees is provided. On the other hand, if a tree has potential for sawtimber and cone production, it is wasteful to cut it.

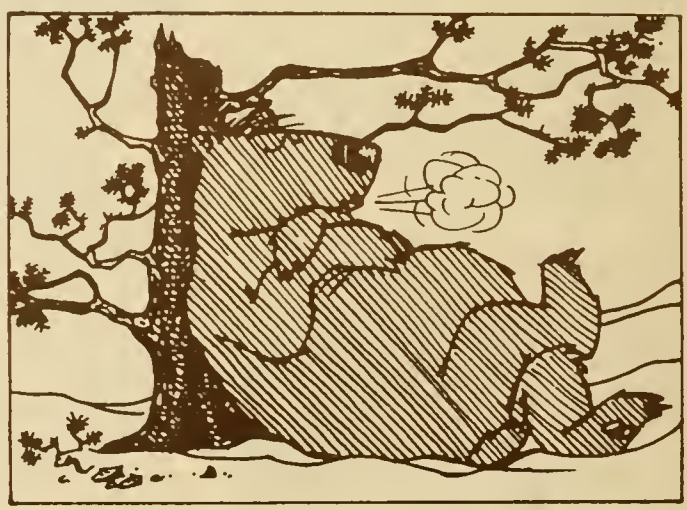
Many people go to the national forests for their trees. This is a privilege that many Montanans still enjoy. Rules and regulations for cutting trees on national forest lands vary in each forest; call the local district ranger to find out what restrictions, if any, are in effect for the area you plan to use. For those areas that are open, we suggest a few simple guidelines for cutting wild land trees:

- Don't cut on private land unless you have the owner's permission. If in doubt, find out. Not all land behind a national forest sign is public land, so a map from the local district ranger's office can be a big help.
- Cutting a tree from a crowded group of trees helps the entire stand by thinning it and providing growing space for the remaining trees.
- Cut at least 150 feet away from any road. This helps maintain the aesthetics of the area.
- Avoid cutting large trees for their tops only; this is wasteful.
- Leave low stumps, six inches high or less.
- Scatter any limbs cut from a tree or better yet, take them home and use them for additional decoration. This practice helps reduce the fire hazard.
- Cut only one tree per family.
- Do not cut trees in plantations. These areas are generally posted and identified along the road.
- Do not cut trees in campgrounds or around communities. Campgrounds were built in an area because of its aesthetic appeal.
- Don't litter.

To prolong the freshness of a tree, follow these hints on its care:

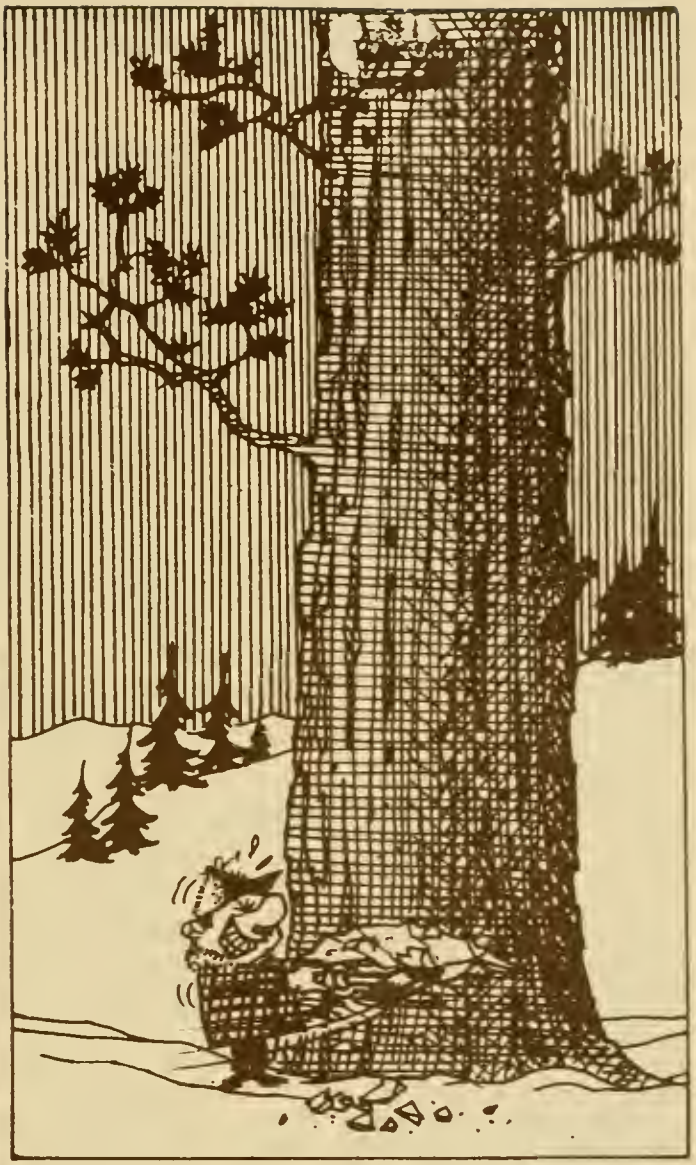
- Minimize the time between cutting and setting up.
- Recut the butt end on an angle before you set the tree up; this helps the tree to absorb water.
- Keep the butt end in water. Some trees absorb two or three quarts of water per day.
- Be sure the tree is well supported in its stand.
- Keep the tree away from heat sources such as radiators or fireplaces. ■

DO select your tree from a group which needs thinning.



DON'T leave a high stump.

DON'T use an unsafe ax.



DON'T cut a large tree just for the top.

DO cut your stumps no higher than six inches.

DO cut and scatter portions of limbs left.

DON'T leave limbs attached to portions left.

Montana Outdoors Index

The following is a list of the major items published in *Montana Outdoors* in 1978. Extra copies of all issues are available from *Montana Outdoors,* Dept. of Fish and Game; Helena, MT 59601. Price for all back issues is $1 per copy.

FISH/FISHING

"1978 Montana Fishing Records." May/June 1978

"Fishing Record Recap"—Just about every record fish has a good story to go with it. May/June 1978

"The Art of Unhooking the Big Ones"—The "how's" and "why's" of catch and release fishing. May/June 1978

"Increase in Fishing License Dollars Needed"—The Catchall. Nov./Dec. 1978

GAME/HUNTING

"Tracking the Wild Ones"—How biologists use telemetry to study animal populations. March/April 1978

"Fires, Rain and Grouse Seasons"—An analysis of information which shows the rationale for early grouse season openings. July/August 1978

"Whitetail: The 'Common Deer of Our Country' "—The life history of this unique big game species. July/August 1978

"Epizootics: Mystery Deer Diseases"—These diseases raise several perplexing questions. July/August 1978

"Harvest Surveys: How You Can Help"—Text and graphs compare the amount of time spent by successful and unsuccessful big game and game bird hunters. Nov./Dec. 1978

GENERAL INTEREST

"On the Road to Paradise"—A visitor from the East learns about recreation in the backcountry. Jan/Feb. 1978

"Is There a Bigfoot?"—An intriguing question with more than one possible answer. March/April 1978

"What is a Bird Hunter?"—Among other things, he's a delightfully unpredictable creature. Sept./Oct. 1978

"What is a Road?"—An editorial posing a simple question with a complex answer. Sept./Oct. 1978

"Diary of a Christmas Hat"—The unraveling of a holiday tale. Nov./Dec. 1978

HABITAT DESTRUCTION

"Weed Control: A Weed is a Weed is a Weed, or is It?"—and **"Biological Control of Weeds"**—A two-part overview. March/April 1978

"Anaconda Co. Muddies Warm Springs Creek"—The Catchall. March/April 1978

"When a Stream Gets in the Way—Move It"—An update on the problems facing the North Fork of the Flathead River. May/June 1978

"Rural Subdivisions and Wildlife Don't Mix"—Why we need to patch up subdivision laws. Nov./Dec. 1978

NONGAME WILDLIFE

"Voice in the Wild"—The loon's haunting call is an integral part of the northern wild country. Jan./Feb. 1978

"At Home with the Prairie Dog"—Comments on a controversial rodent. March/April 1978

"Ghostly Wanderer from the North"—The life history of the snowy owl and details about its relationship with the lemming. March/April 1978

"Montana's Little Dipper"—The life history and details about the water ouzel. May/June 1978

"Feathers Underground—The Burrowing Owl"—The only owl in the Western Hemisphere which is almost totally ground dwelling. July/August 1978

"The Least Bothered Animal on Earth"—The skunk won't win any popularity contests. Sept./Oct. 1978

"Aristocrat of the Squirrel Family"—The life history of the flying squirrel, "furry kite" of the squirrel family. Nov./Dec. 1978

PHOTO/ART FEATURES

"What is Wilderness?"—A wilderness picture story, with text. Jan./Feb. 1978

"Winter Scenes"—A series of color photographs of a Montana winter, with *haiku.* March/April 1978

"Grouse of Montana"—A watercolor portfolio picturing Montana's five grouse species. Sept./Oct. 1978

"Montana Montage"—A series of color photographs of some of Montana's wildlife species by a Montana wildlife photographer. Nov./Dec. 1978

PREDATORS/PREY

"The Wily, Wild Dog"—An update on the department's coyote/big game research. March/April 1978

"Predator Abundance Survey Results Released"—The Catchall. Sept./Oct. 1978

PUBLIC LAND

"The CMR: Rich Beyond Measure"—History and outlook for this eastern Montana wildlife refuge. Sept./Oct. 1978

RECREATION

"Using Horses in Mountain Country"—A guide for using horses in backcountry. Jan./Feb. 1978

"Getting the Trash Out"—The Catchall. May/June 1978

"Wild Edibles"—A Recreation Guide to edible wild plants. May/June 1978

"South Sandstone: For Once, Everybody Won"—A reservoir in Fallon County becomes a new spot for recreationists. July/August 1978

"Salmon and Placid Lakes: Montana's Newest Parks"—Champion International donates acreage to provide outdoor opportunities for many Montanans. July/August 1978

"Enforcing Park Regulations"—An editorial about enforcement in our state park system. July/August 1978

"Tanning Your Hide"—A step-by-step guide, with helpful photographs. Sept./Oct. 1978

"Wild Horse Island: Jewel of the Flathead"—An island in northwestern Montana becomes Montana's newest state park. Nov./Dec. 1978

WATER

"Waters of the Yellowstone"—A guest editorial by Montana's lieutenant governor. May/June 1978

WILDERNESS

"Wilderness and Wildlife"—How wilderness classification affects hunting, outdoor recreation and wildlife management. Jan./Feb. 1978

"Current Wilderness Proposals"—Information on nine areas in Montana proposed for wilderness classification. Jan./Feb. 1978

Rural Subdivisions And Wildlife Don't Mix

Loopholes in existing subdivision laws allow many developments to proceed without adequate review. These loopholes should be repaired. The fate of much valuable wildlife habitat and prime agricultural land hangs in the balance.

by Bob Kiesling and Bill Schneider

FOR MORE THAN A DECADE, the Montana Legislature has attempted to properly regulate subdivision of rural land. It has passed two laws specifically to control inappropriate subdivision, and several economic-incentive laws to discourage bad development. At the same time, citizens' groups have periodically voiced concern with the apparent lack of progress. Several times, the Dept. of Fish and Game has added its voice to this public outcry. And the legislature has responded by repeatedly amending the laws.

Yet, even after all this dedicated work by citizens and public officials, the tempo of land splitting has not slowed.

Since 1975, figures from state agencies indicate the rate of subdivision has not "been brought under control" but actually has increased. In the period from 1961-69, for example, an average of 50 subdivisions per year were reviewed and approved by the Dept. of Health and Environmental Sciences (DHES). By 1974, the figure rose to 319 subdivisions reviewed and approved; in 1975, DHES reviewed 1,040. In fiscal 1977, 2,510 subdivisions were reviewed by DHES.

Montana has a legislatively mandated review process *meant* to regulate rural subdivision. Yet, developments can proceed without regulation if developers decide to use loopholes and shortcomings in subdivision and sanitation laws, as some do. Meanwhile, wildlife habitat, prime agricultural land, open space, water quality and recreational access continue to fall by the wayside.

The May/June 1976 issue of *Montana Outdoors* contained an article on uncontrolled development near Wolf Creek between Helena and Great Falls. Aptly titled "The Subdivision Nobody Knew," the article described a development that had sprawled over 9,000 acres—much of it important wildlife habitat. This subdivision came to be by using loopholes in the subdivision law, without any public review or regulation. Even though this development was at least twice as large as any previous one in Lewis and Clark County, only the developers, buyers and a few employees of the county courthouse even knew it existed.

In 1973, a Bozeman firm proposed Beaver Creek South, a high-density subdivision adjacent to the Gallatin Game Range, a world-famous wintering area for elk that migrate out of Yellowstone National Park. This development posed a threat to elk in this portion of the Gallatin Canyon. Nonetheless, the development moved through the review process and received approval by all the necessary public officials and agencies.

A legal appeal by the Gallatin Sportsmen's Assn. and the Montana Wilderness Assn. went all the way to the Montana Supreme Court and temporarily turned back Beaver Creek South. Then, a second Supreme Court decision allowed the development.

However, loss of habitat might not be the most serious problem typified by subdivisions like Beaver Creek South. People who move into subdivisions in

remote areas like the Gallatin Valley often come from out-of-state urban areas. And they often resent hunting. Such sentiment can rob Montana of an invaluable wildlife management tool and a rewarding form of outdoor recreation. Or, as LeRoy Ellig, the department's regional supervisor in Bozeman notes: "This reminds me of people who build close to the airport and then complain about the airplane noise."

"The reasons for avoiding review vary, but the result is the same—namely far less capacity to wisely guide development than the laws intend."

This problem reared its head at the January 1978 Fish and Game Commission meeting when a delegation of concerned residents of the Gallatin Valley urged that the late hunt meant to control the migrating elk population be immediately stopped. "There are people living in the Gallatin Valley from all over the world," one protester lamented. "What will they think when a hunter drags a dead elk in front of them?" Another insisted the Gallatin is now a recreational area, not a hunting area.

Such a change in attitude can severely hamper professional management. Indeed, it already has in other states.

Another subdivision, south of Geifer Creek off U.S. Highway 2—right across the street from Glacier National Park—has resulted in bear/man conflicts. Slippery Bill subdivision was proposed by a group of northwestern Montana businessmen, and local and state agencies approved it.

Dr. Charles Jonkel of the Border Grizzly Project, headquartered at the University of Montana in Missoula, said Slippery Bill subdivision is "right in the center of quite important grizzly bear habitat." He also said, ". . . Certainly the proliferation of such subdivisions is detrimental to the species."

Recognizing the relationship between the quality of life and the use of land, the legislature passed the Subdivision and Platting Act in 1973 with the intention of subjecting subdivision decisions to public deliberation at the local level. Passage of the act was a giant stride in land-use decision making. It heralded a new emphasis on matching private decisions with public concerns.

The act had two basic goals: (1) to improve the quality of development by providing for public review and approval of subdivisions and (2) to maintain accurate land records. The act required that divisions of land into parcels of 10 acres or less, condominiums and mobile home and recreational vehicle parks be reviewed and approved by the local governing body as subdivisions. Public review usually involves hearings where supporters and protesters can testify before a local governing body or planning board, and provides a time period for sending in written comments.

The 1974 legislature amended the law to review parcels up to 20 acres, instead of 10 acres. The lawmakers also added an exemption from review for occasional sale (one sale allowed every 12 months).

The 1975 legislature added a provision requiring the local governing body to make a written finding of fact that the proposed subdivision is in the public

cartoon reprinted courtesy of *Washington Wildlife*

interest, as determined by weighing eight specified criteria: wildlife and wildlife habitat, agriculture, public opinion, local services, taxation, public health and safety, the natural environment and the need for the subdivision.

In addition, the Sanitation in Subdivisions Act of 1961, which directs the DHES to approve the sanitary facilities in subdivisions, was amended by the 1975 legislature to make the definition of "subdivisions" identical to that in the Subdivision and Platting Act. The 1975 legislature also required DHES approval for divisions of land filed under the exemptions for an occasional sale, transfer to a member of the immediate family and relocation of a common boundary line.

". . . Developments can proceed without regulation if developers decide to use loopholes and shortcomings in subdivision and sanitation laws, as some do."

Because of this new legislation, the quality of land development has improved. Ed Casne, chief of the DHES Subdivision Bureau says, "There's no question that developers have been submitting higher quality proposals as they have become more familiar with the laws."

The Dept. of Community Affairs (DCA) echoes this opinion in a recent report by suggesting that in the past three years "subdivisions have become better planned and designed as local officials and planning board members have become more familiar with the subdivision law and proper development design.

" . . . The single most important factor contributing to better subdivision review," DCA notes, "is the in-depth examination of a proposed subdivision by staff or consulting planners. Thirty-three counties now have the services of a planner to assist in subdivision reviews."

Thus, despite its shortcomings, the present system prevents some inferior developments. For example, in March 1975, Robert Saxe of Dave Saxe, Inc., Mt. Union, Penn., submitted preliminary plans for a development near the East Fork of the Bitterroot River. This would have created approximately 200 building sites on 1,640 acres of prime deer and elk winter range. Dr. George Mead, a private consultant hired by Saxe, submitted an environmental assessment indicating the development would have slight impact on wildlife habitat.

After an on-site inspection, however, John Firebaugh, a Montana Dept. of Fish and Game wildlife biologist from Hamilton, disagreed. Firebaugh noted that the entire 1,640 acres of land lies within winter range limits and that Mead's report failed to mention or even consider the impact on wildlife from the physical loss of habitat through construction of dwellings, roads, etc.

Firebaugh concluded, "There is no way this proposed development is well planned as far as the wildlife resource is concerned."

Stu Burns, a Forest Service biologist then working in the Bitterroot Valley, echoed Firebaugh's conclusion: "In my professional opinion the proposed development . . . will negate virtually all of the big game wildlife value which this land now possesses."

The DHES had its own reservations about the Saxe development. It felt that proposed septic tank drainfields were unsatisfactory, that the slopes for building sites were too steep and that the depth to bedrock was shallow. After this negative comment, the DHES received no further correspondence from Saxe and plans for the development, Bitterroot Forks, were dropped.

Thus, the system can work. Unfortunately, most land divisions escape this review process. The reasons for avoiding review vary, but the result is the same—namely far less capacity to wisely guide development than the laws intend.

One common method of avoiding public review is selling lots larger than 20 acres. In setting this limit, the legislature felt most subdivision lots were smaller than 20 acres and thus would be forced into public regulation. Although that may have been true in 1975, developers began increasing the lot size. Thus, if a development has one hundred 20-acre lots and one 19-acre lot, only the single, smaller parcel is reviewed.

To ascertain how many subdivisions escape review in this fashion, DCA recently inventoried nine counties that it believed were representative of subdivision review capabilities and are undergoing major land development activity. The results were shocking: Of nearly 130,000 acres divided into parcels from 1973-76, 93%—120,000 acres—was subdivided *without public review.*

"Yet, even after . . . dedicated work by citizens and public officials, the tempo of land splitting has not slowed."

True, much of the land that's divided isn't immediately developed. Instead, it remains in present use and undergoes little more than an ownership and boundary change on paper. Nonetheless, the very act of division, even if only on paper, usually determines the future use of the land.

A productive valley floor chopped up into 20-acre parcels might remain in agricultural use for a while. But since economics dominates most land-use decisions, the parcels will usually be sold and developed.

continued

Cliff Christian, executive vice president of the Montana Assn. of Realtors, suggests that much of the problem lies in the fact that laws are new and frequently amended. Christian argues that developers can't keep abreast of the changes without becoming frustrated. "Every time the legislature meets, it amends the laws and that, in turn, generally leads to revised regulatory policies on the part of the agencies," he contends. "It's frustrating to have the rules of the game constantly shifting, and that problem coupled with the time and costs involved in review tends to discourage anyone from undergoing review if he can avoid it." He also thinks the added costs of development have driven smaller developers from the business, leaving only the larger subdividers to work within the review process.

" . . . Certainly, not all divisions of land are bad. Many are necessary, particularly those that result in appropriate uses of the land . . . ."

Christian sees no sense in the many land divisions made with parcels just over 20 acres to avoid review. Neither does he appreciate thekind of "leapfrogging" growth patterns so common in Montana. As an alternative, he prefers more high-density development in and around urban areas. But he thinks that until the laws stabilize and there is better local understanding of how the laws work, abuse of the laws and, in many instances, the land resource, will continue.

Other escape hatches for developers are provided by the legal exemptions in the subdivision laws. For example, a gift or sale of land to an immediate family member does not have to undergo public review, nor is review necessary for an occasional sale.

No great impact should have come from allowing such isolated divisions, but some developers have used the exemptions to create *de facto* subdivisions with no review—clearly *not* what the legislature had in mind.

For example, the DHES recently sued to stop a Glacier County subdivision owned by Great Falls developer William M. Kessner. The suit alleges that the 14-acre, 13-lot subdivision was filed without receiving health department approval for sewage and water facilities as the law demands. The suit describes a sequence of land transactions on June 10, 1977 involving Kessner and 13 others, mostly Great

graphics: Vern Craig

Falls land buyers, who then turned the entire subdivision over to Kessner six days later. The complaint seems to raise a question of whether the individuals involved properly used the occasional sale exemption so the subdivision could escape public review. The suit was dismissed recently by

"Since 1975, figures from state agencies indicate the rate of subdivision has not 'been brought under control' but actually increased."

District Court Judge R.D. McPhillips, but the DHES has appealed that ruling to the Montana Supreme Court.

Obviously, many people view the exemptions as acceptable techniques for avoiding review, forgetting that the law also insists that exemptions not be used for ". . . purposes of avoiding the Act."

Consider the remarks of Doug Johnson, a developer from Missoula County, whose recent proposal for a major development outside Lolo, called Bitterroot Meadows, was turned down by the local planning board. One reason was the impact on wildlife.

In arguing for board approval of his subdivision, Johnson said the land parcel in question ". . . cannot be preserved for the future. We have two alternatives: We either have to butcher it and sell it or we have to do it right and sell it."

Johnson's threat to "butcher" the parcel was questioned by a board member who wondered how many sales or divisions Johnson hoped to get out of the land if the board turned him down. "Approximately 100," he replied. "We occasional-sale one-half to my father; my father occasional-sales one-half to my mother; my mother occasional-sales one-half to the buyer—it just chops the land all down to pieces."

When told that making such splits would be illegal under the Subdivision and Platting Act, Johnson indicated he would turn the matter over to professional engineers.

On Feb. 1, 1978, the Missoula Board of County Commissioners confirmed the planning board's denial, effectively killing the subdivision plan in its present form. Whether Johnson proceeds remains to be seen.

Of course, not everyone in the land development business tries to avoid the public review process. For example, Dave Rasmussen, a developer in the Helena area, believes that subdivisions undergoing the review process are much better than those put in prior to passage of the subdivision laws or those now escaping the review process. Rasmussen adds, "Almost everything in the laws is there for a good purpose, namely the ultimate benefit to the lot buyer, and that makes review a legitimate process."

And certainly, not all divisions of land are bad. Many are necessary, particularly those that result in appropriate use of the land—e.g., converting low-grade agricultural land with little wildlife value in or near an urban area into a high-density housing development. This type of subdivision fulfills a legitimate need to accommodate expanding urban populations and it doesn't pose a problem. Thus, it isn't the target of this article. Recreational or second-home developments—often miles from urban areas and frequently in good wildlife habitat—are the problem.

Wildlife emerges as the constant loser, amid the rush to the country. Areas near quality hunting and fishing are prime targets for rural subdividers who don't balk at advertising wildlife values to increase sales.

Late last year, for example, a Missoula realty firm ran a series of television and newspaper ads offering 20-, 40- or 80- acre tracts east of Helena near Hauser Reservoir. The ads vividly described the land as a "sportsman's paradise—over 1 million acres with elk, sheep, bear, deer, antelope in your backyard . . .fabulous fishing . . . ducks, geese and upland game birds galore."

Buyers of such land get a chunk of wild Montana, all right, but they won't have it for long. When the chain saws, bulldozers, free-roaming dogs and cabins arrive, the wild animals will leave. Wildlife and subdivisions simply don't mix, a fact never found in developers' ads.

Ironically, this and other rural, recreational or second-home subdivisions eventually destroy what makes them desirable in the first place. For example, a homesite within site of a winter game range brings a higher price. Too bad lot buyers gradually destroy what they bought. A wintering area for wildlife gradually becomes a wintering area for people.

At times, fish and wildlife require a highly specialized environment. For example, elk, deer and other big game depend on a traditional winter range, a critical component of habitat hit hard by rural subdivision. Subdividing winter range and other

"It's frustrating to have the rules of the game constantly shifting, and that problem coupled with the time and costs involved in review tends to discourage anyone from undergoing review if he can avoid it."

critical areas such as calving grounds, migration routes and nesting areas affects wildlife numbers over a wide area, not merely on the subdivision site.

In addition to subdivisions where the impact on wildlife is extreme, there are thousands of smaller developments. Individually, they don't have a serious impact, but together, they add up to tremendous loss of wildlife habitat.

continued

Most people consider wild animals an important part of Montana. Witness the recent "Montana Futures" survey by the governor's office indicating that over 70% of Montanans make a special effort to observe wildlife in its natural setting. With the "natural setting" slowly becoming an urban setting, opportunities to hunt or observe wildlife are fading away. To preserve this part of Montana's way of life, land-use policy must be changed.

Too often, land-use decisions depend entirely on economics. Missing is the mix of criteria needed to determine the best use of the land, to maintain ecological integrity, to meet real human needs and to preserve a high quality of life for everybody.

To continue to treat the land resource simply as a commodity is folly of the worst sort, for in doing so

"Wildlife emerges as the constant loser, amid the rush to the country."

we willingly trade off long-term productivity, character and quality for short-run economic gains that have only fleeting satisfaction. Economics should enter into land-use decisions, but not as a dictator.

So, what's the solution? First, admit that a problem exists. Second, set the proper tone for discussions. Environmentalists, developers, government officials, ranchers, legislators and everybody else concerned with land-use policy should work together in the interest of attaining cooperative solutions. And third, patch the holes in existing laws and encourage local governing bodies to better respond to their obligations in guiding land use.

In the last analysis, however, no amount of legislative deliberating, government policy making or bureaucratic badgering can be expected to work without the widespread adoption of what Aldo Leopold called a new "land ethic," in which land is not a commodity, but a partner: ". . . A system of conservation based solely on economic self-interest is hopelessly lopsided. It tends to ignore, and thus to eliminate, many elements in the land community that lack commercial value, but that are essential to its healthy functioning. It assumes that the economic parts of the biotic clock will function without the uneconomic parts. It tends to relegate to government many functions eventually too large, too complex, or too widely dispersed to be performed by government. An ethical obligation on the part of the private owner is the only visible remedy for these situations." ■

RECOMMENDATIONS

Although regulation is not a good substitute for adequate land-use inventory and planning processes, it is currently the only way we have of preventing or altering poor land-use decisions. The following steps would better protect the natural environment and streamline the review process to save time for developers and public officials:

- The most abused "exemptions from public review"—the occasional sale, the family conveyance and the 20-acre provision—should be eliminated. Exemptions from review should be allowed for court-ordered subdivisions and those created by eminent domain. The exemption for agricultural uses of land should be retained, and the language revised to prevent abuses that have occurred in the past.
- "One-stop shopping" should be provided for developers. One packet with well-designed, easy-to-interpret forms should be supplied to give both state and local reviewers the information they need. Review of subdivisions should be conducted simultaneously by all reviewing bodies to permit a better exchange of information and expertise and to save time and repeated trips by developers to several agencies.
- Public notice should be required for all subdivisions, as should a public hearing.
- Enforcement authority for the Dept. of Community Affairs and/or the attorney general should be legislated and clearly defined.
- When a number of small subdivisions are submitted for individual review in a given area, local governing bodies should be required to consider them collectively as a major subdivision.
- The Sanitation in Subdivisions Act should be amended to make violations civil rather than criminal offenses. The state should be permitted to recover attorney's fees when it wins a civil suit.
- Time extensions for review should be allowed when an environmental impact statement is deemed necessary.
- Local governing bodies should be required to identify and designate lands that should be protected from subdivision, such as prime agricultural land, key wildlife habitat and floodplain. Such comprehensive land inventory and planning should be funded at the local level by the state's general fund.

HARVEST SURVEYS: How You Can Help

by John P. Weigand

EVERY wildlife biologist, game warden and most hunters recognize that effective wildlife management programs require accurate information. Wildlife professionals need data on population breeding stock, productivity, mortality and habitat and weather conditions. A good deal of accurate information is necessary to manage just one wildlife species.

This article will focus on how the information is obtained to evaluate wildlife mortality due to hunting. Actual harvest figures and comparisons with previous years are also included.

WHY QUESTIONNAIRES?

Among the methods for determining annual wildlife harvests is the mandatory examination and tagging of every harvested game animal at a department check station. This approach would yield the most reliable information on harvests of each species, but it would also inconvenience hunters by requiring travel to and from check stations. In addition, it would necessitate manning a large number of check stations for almost three months each year, a very costly operation.

Requesting harvest information via questionnaires mailed to hunters is another method. The success of questionnaire surveys depends heavily on hunter cooperation in completing and returning the forms. It also depends on questionnaires designed to encourage maximum hunter cooperation.

The Montana Dept. of Fish and Game uses a combination of check stations and mail questionnaires to gather harvest information. Hunters must present their game when they encounter strategically located check stations, but more information is gathered statewide from the questionnaires.

In 1977, 382,000 sportsmen purchased 699,000 hunting licenses in Montana. Sportsmen could choose from 34 different types of hunting licenses (19 types for residents and 15 for nonresidents). Obtaining accurate harvest information from such a large and diverse group of recreationists requires an organized plan.

Each year, our plan consists of four steps: (1) developing a list of all license buyers; (2) selecting a sample from each type of license to receive questionnaires; (3) mailing the questionnaires, and (4) processing the returned questionnaires. In addition, questionnaires are reviewed annually to see if they can be improved.

THE LICENSEE LIST

Developing the annual list of

1977 GAME HARVESTS

Statewide harvest information from 1977 and long-term averages are presented in two accompanying tables for general comparison with your own successes. Each figure represents an *estimate,* not an absolute number. The information has been provided by hunters themselves, with approximately one of every five hunters participating in the 1977 surveys.

licensee names and addresses may be compared to human pregnancy: Its format is conceived; it grows with each license, stamp and special permit sale, and, after about nine months, a new list is produced.

The nucleus of each year's list is the prerequisite conservation license. Everyone (except Indians on reservations) who is at least 12 years old and wants to legally hunt in Montana must buy one. Each conservation license has its own number which identifies the license purchaser by name and address. The number, name and address of the purchaser are recorded in a population register or computer file.

Each of the other types of hunting licenses or stamps (except the federal migratory bird stamp) has a unique number. These numbers are stored in a separate computer file.

Special permit numbers are not written on conservation licenses because they are issued only from the department's Helena office. These numbers and the corresponding names and addresses are stored in still another computer file.

The hunter and the person issuing the license are crucial in developing the various licensee lists. The buyer is obligated to provide his or her correct name and address and the issuer should legibly write all information sought on the license.

Delinquent license stub remittances by dealers are a major problem in this part of the survey. Despite a requirement for submitting these to the department by the 10th of each month, 10%-15% of the stubs are still in the dealers' possession in late December when samples are drawn. Because some stubs are late, hunters in certain areas do not receive questionnaires. Their hunting success, therefore, is not included in the annual survey and may seriously affect the accuracy of the survey. This, in turn, can jeopardize proper management of game populations in those areas. Every license dealer can contribute to proper game management by timely remittance of license stubs.

Hunter check stations like the one above yield valuable biological data (F&G photo: Tom Warren).

SELECTING THE SAMPLE

Statistics, a field of mathematics, has shown that it is unnecessary to interview or measure an entire population to describe its characteristics. Manufacturers, businessmen, scientists, politicians and others use statistics regularly to monitor quality control, cost and income trends, significant findings and public opinion. Statistics can save the user considerable time and money, but the limitations of statistics must be recognized. The department has long recognized the benefits *and* the limitations of statistics.

Past experience with this survey indicates 41% of the deer and elk licensees must be interviewed to obtain accurate harvest information for each hunting district. In 1977, 48,642 residents and 5,409 nonresidents were selected to receive these questionnaires. Forty-six per cent (3,712) of the resident archers and all (339) of the nonresident archers were sampled. Twenty per cent (12,222) of resident upland game bird-waterfowl hunters and an average of 28% (4,152) nonresidents received questionnaires requesting bird harvest information.

All special species/season licensee and permit holders, except those for antelope, were sent questionnaires. In 1977, there were

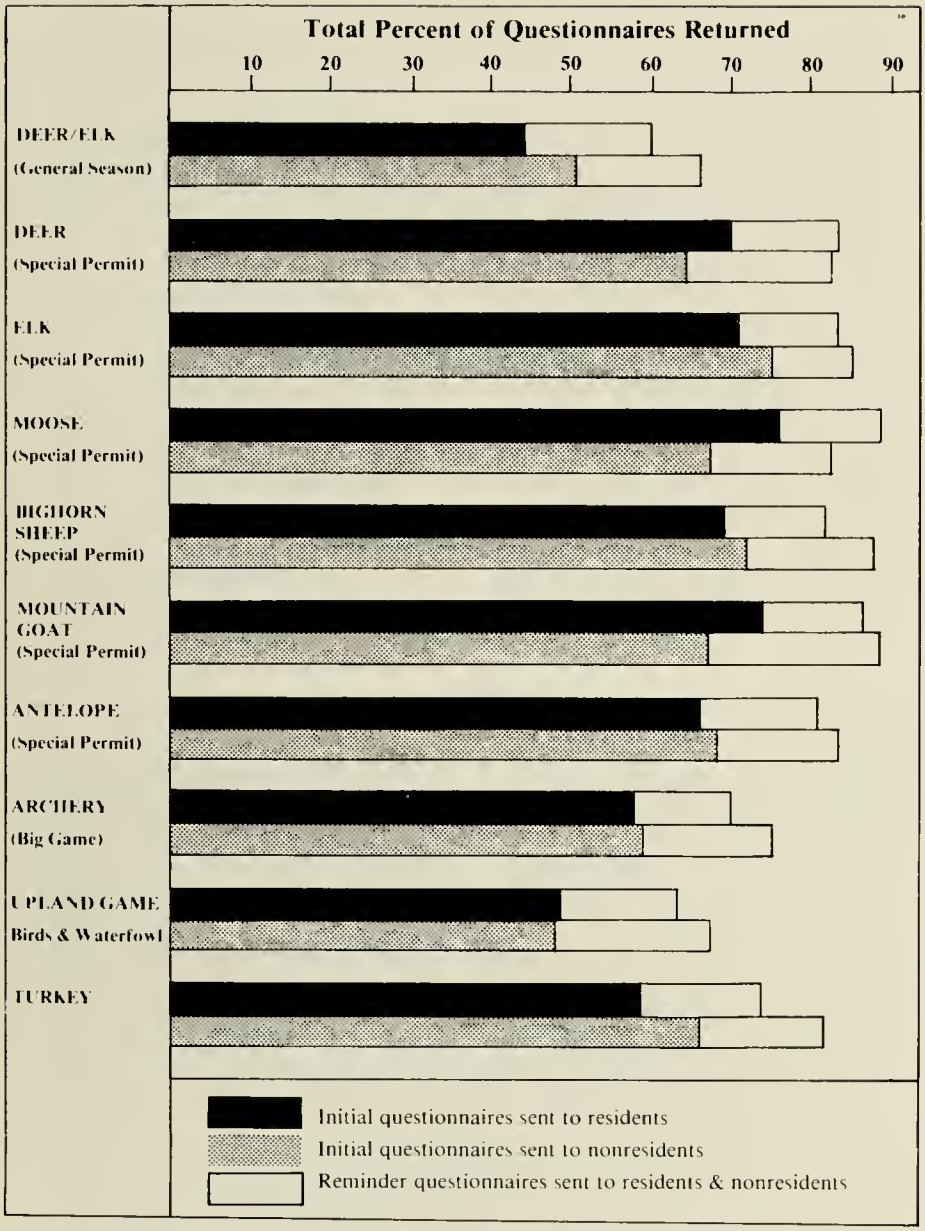


Figure 1—*Hunter response rates to Montana's game harvest questionnaires, 1977.*

1,750 for deer, 4,260 for elk, 602 for moose, 719 for bighorn sheep, 467 for mountain goats and 1,798 for turkeys. Antelope questionnaires went to 20% (5,044) of the residents and 77% (1,678) of the nonresident licensees.

MAILING THE QUESTIONNAIRES

Information should be collected when hunting activities of the previous seasons are reasonably fresh in hunters' minds. Some hunters have difficulty remembering all of their hunting activities, some of which may date back to September. In the past, we have mailed questionnaires after the close of hunting seasons, usually in early January. An earlier mailing has been suggested and may be attempted in 1978.

Because almost 91,000 licensees and permittees were sampled in 1977, questionnaires were sent out in waves. All special big game (antelope, moose, sheep and goat) questionnaires were sent out the second week in January. Game bird and archery questionnaires were sent the following week and those for deer/elk went out the fourth week.

Five weeks after mailing each initial wave, we sent appropriate reminder questionnaires. Since only about 53% of all initial questionnaires were returned in the allotted time, we had to send 42,800 reminders in 1977.

Returns were cut off four weeks after the reminders were mailed. Only questionnaires received during the first nine weeks after each wave was sent were included in tabulations. In other words, if a sampled licensee wanted his or her information recorded, he or she had to return the questionnaire within nine weeks of the initial survey mailing.

RETURNING QUESTIONNAIRES

Many kinds of information were received on the 59,000 returned questionnaires. The data were key punched and processed by a computer. Once computerized, the data were scanned for completeness and accuracy. When the computer finds information which is incorrect, either the computer or a person must make a judgment about the data. For certain data problems, the computer deletes the entire record. In other cases, the computer prints out the error, a knowledgeable worker can correct it and the record is included in final tabulations. Hunters can reduce these efforts and associated costs by taking a few extra minutes to make sure their information is complete and accurate.

In Figure 1, response rates have been plotted for 10 types of questionnaires in 1977. Total response rate is determined from the entire length of each bar. Percentages in the black portion of each bar are rates of return for initial questionnaires sent to residents, while those in the shaded bars are for initial questionnaires sent to nonresidents. Reminders sent to residents and nonresidents are indicated by clear bars. For comparison, we calculated return rates separately for residents and nonresidents.

Undeliverable questionnaires

averaged 3% for all survey types. These are questionnaires which the U.S. Postal Service returned because the intended recipient moved to an unknown address, the address was incorrect or incomplete or the person had died.

From this figure, we can see that special permit holders responded more frequently than general licensees, and nonresidents had slightly higher return rates than residents in eight of the 10 surveys.

We don't fully understand why hunters fail to return questionnaires. Some researchers suggest many of those who do not respond may be unsuccessful or those who didn't hunt at all. Unsuccessful hunters may be too embarrassed to admit their lack of success while both unsuccessful and nonhunters may feel they have no useful information to offer.

Since harvest results are expressed in averages, it is extremely important for these groups, as well as successful hunters, to complete and return questionnaires. If only successful hunters respond, harvest and hunting success estimates are elevated above true levels. Game managers could be led into a false sense of confidence about the effects of hunting regulations and overharvest of a species could result. Failure of unsuccessful hunters to respond also results in lower estimates of hunting pressure than those which actually exist. The department is working to prevent further land posting and to regain access to land which was closed because of excessive hunting pressure. Unsuccessful hunters and nonhunters can therefore contribute information vital to good game management and continued hunting in Montana.

DATA BANK, YES— BIG BROTHER, NO

Information from returned harvest questionnaires is stored on computer cards, disks or tapes. Only numbers are stored. Questionnaire code numbers, which represent hunter names and addresses, are stored from initial mailings. They permit us to discover who has returned questionnaires; we then send

MONTANA'S GAME BIRD HARVESTS: 1977 vs. 5-YEAR AND 20-YEAR LEVELS

	1977	1973-77 Avg. Annual	20-Year Low	20-Year High	20-Year Avg. Annual
Native Upland Species					
Sage Grouse	34,730	42,620	18,590 (1958)	99,140 (1964)	42,040
Sharp-tailed Grouse	95,210	97,280	31,830 (1962)	140,590 (1966)	76,250
Blue Grouse	52,600	52,800	28,930 (1959)	64,310 (1973)	47,580
Ruffed Grouse	54,680	48,390	28,770 (1958)	85,640 (1962)	50,070
Franklin's (Spruce) Grouse	24,710	25,770	11,510 (1958)	44,780 (1964)	25,940
Exotic Upland Species					
Ring-necked Pheasant	102,250	72,140	48,400 (1974)	358,020 (1964)	142,080
Hungarian Partridge	103,940	69,370	32,630 (1972)	163,760 (1964)	68,300
Chukar Partridge	1,850	1,530	200 (1959)	4,500 (1964)	1,960[1]
Waterfowl					
Ducks	210,800	208,880	98,750 (1962)	268,580 (1966)	187,860[1]
Geese	14,780	13,620	4,280 (1960)	19,610 (1963)	11,060

[1]19 years of data available.

reminders to those who did not.

At the end of each nine-week survey, *name and address files are destroyed* (see exception below). Harvest information is obviously preserved until it can be edited, compiled and analyzed. Once data processing is completed and the results are analyzed by game managers (in about six months), the *individual hunting records are also destroyed.* We have the desired management information and there is no point in maintaining costly data storage banks.

There is only one case where we program the computer to match questionnaire code numbers with names and addresses after questionnaires are returned. Each year we need the wings from game birds to obtain information on sex and age composition, reproductive success, timing of the hatch and time periods in which each species was bagged. These facts are not revealed by harvest questionnaires, so we solicit further voluntary assistance from the more successful bird hunters. They are asked to provide wings during the next fall's hunting season. The wing survey is, then, an extension of the harvest survey.

The game bird questionnaire name and address file is erased after we produce mailing labels for those participating in the wing survey. These select hunters (3,300 in 1978), plus those returning harvest questionnaires, provide much of the information which supports bird hunting for 40,000-60,000 hunters each fall.

Because of the above procedures which are designed to maintain anonymity, we do not answer questions or information requests written on or enclosed with, the questionnaires unless hunters provide their names and addresses. We *could* program the computer to provide names and addresses for all hunters. But, quoting from an article by Burwell Gooch and Joe Egan *(Montana Outdoors,* Jan./Feb. 1973), the Wildlife Division "is concerned with *what* happened *where,* not *who* did what and where."

Fears of the Dept. of Fish and Game becoming a "big brother" apparently persist in the minds of some hunters. These are the hunters who tear off or obliterate the code numbers from questionnaires before returning them. Their "fears" are enforced when, lo and behold, they receive a reminder questionnaire a few weeks later. Eliminating the code number *assures* they will receive a reminder. It also results in escalating survey costs which, sooner or later, will result in increased license fees.

QUESTIONNAIRE ECONOMICS

The Wildlife Division is trying to keep the lid on all expenses, a difficult task in light of increasing inflation. Most survey expenses involve those over which we have no control. Postage rates alone were increased more than 15% in April 1978 by the federal government. Increased printing, paper and computer programming costs can also be expected.

One effort to maintain an economical survey will result from the redesigning of questionnaires to yield more accurate information, thereby reducing numbers of questionnaires mailed. They should also be more easily understood, thus encouraging hunters to complete and return them. Our goal is 90+% response for each type of questionnaire. To be completely successful, this response rate should be for *initial questionnaires* so we can eliminate reminders.

Hunters will continue to be a key element in the success of these surveys. The following steps will aid in this success:

(1) *Read* each questionnaire's directions and questions *carefully.*

(2) *Answer each applicable question* as accurately as memory allows.

(3) After completing the questionnaire, reread all questions and answers to assure completeness.

(4) Mail the completed questionnaire within three weeks of receipt. (Better yet, complete and return the questionnaire the same day it is received!) ■

MONTANA'S BIG GAME HARVESTS: 1977 vs. 5-YEAR AND LONG-TERM LEVELS

	1977		1973-77		Long-Term		
Species	Harvest	Percent Success	Average Annual Harvest	Average Percent Success	No. Years	Average Annual Harvest	Average Percent Success
Deer	54,140	63	83,210	59	30	92,290	76
Elk	13,340	17	12,850	15	25	12,690	19
Antelope	18,530	77	18,050	71	19	17,870	74
Moose	400	68	480	67	30	375	72
Bighorn Sheep	86	20	105	14	19	80	15
Mountain Goat	230	56	270	53	19	340	40

MO SAVES THE DAY

If you've run out of ideas for some of those special folks on your Christmas list, ***Montana Outdoors*** *can save the day. This year, don't send Great Aunt Mildred another box of hankies; forget about Uncle Fred's annual tie. Instead, send each of them a subscription to* ***Montana Outdoors****—it costs only $5 for one year. All you have to do is fill in the tear-out order form inside. Mildred and Fred will each receive a gift card with your name and a Christmas greeting on it.* ***Montana Outdoors*** *makes a "dog-gone" good Christmas present and it's a gift that does indeed prove that Christmas* ***can*** *come more than once a year.*